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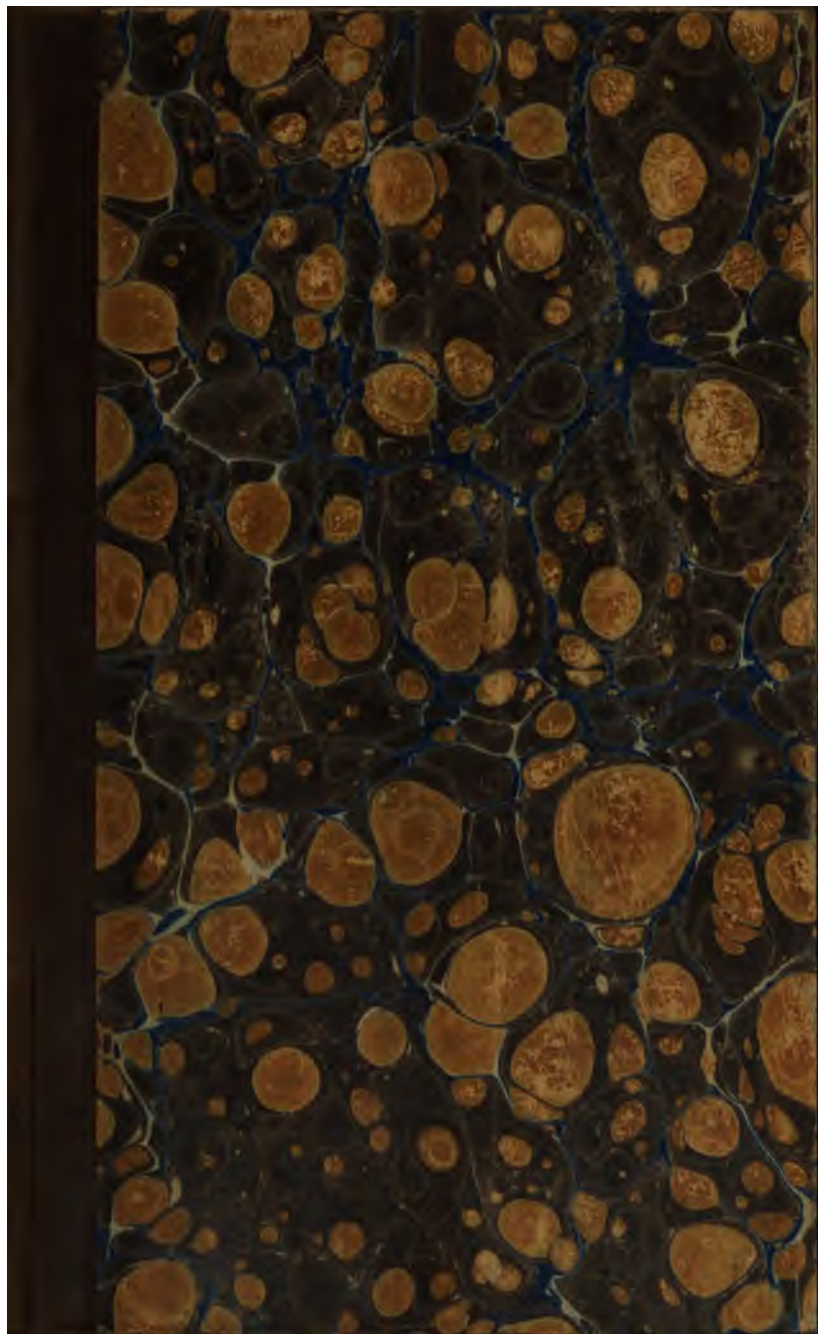
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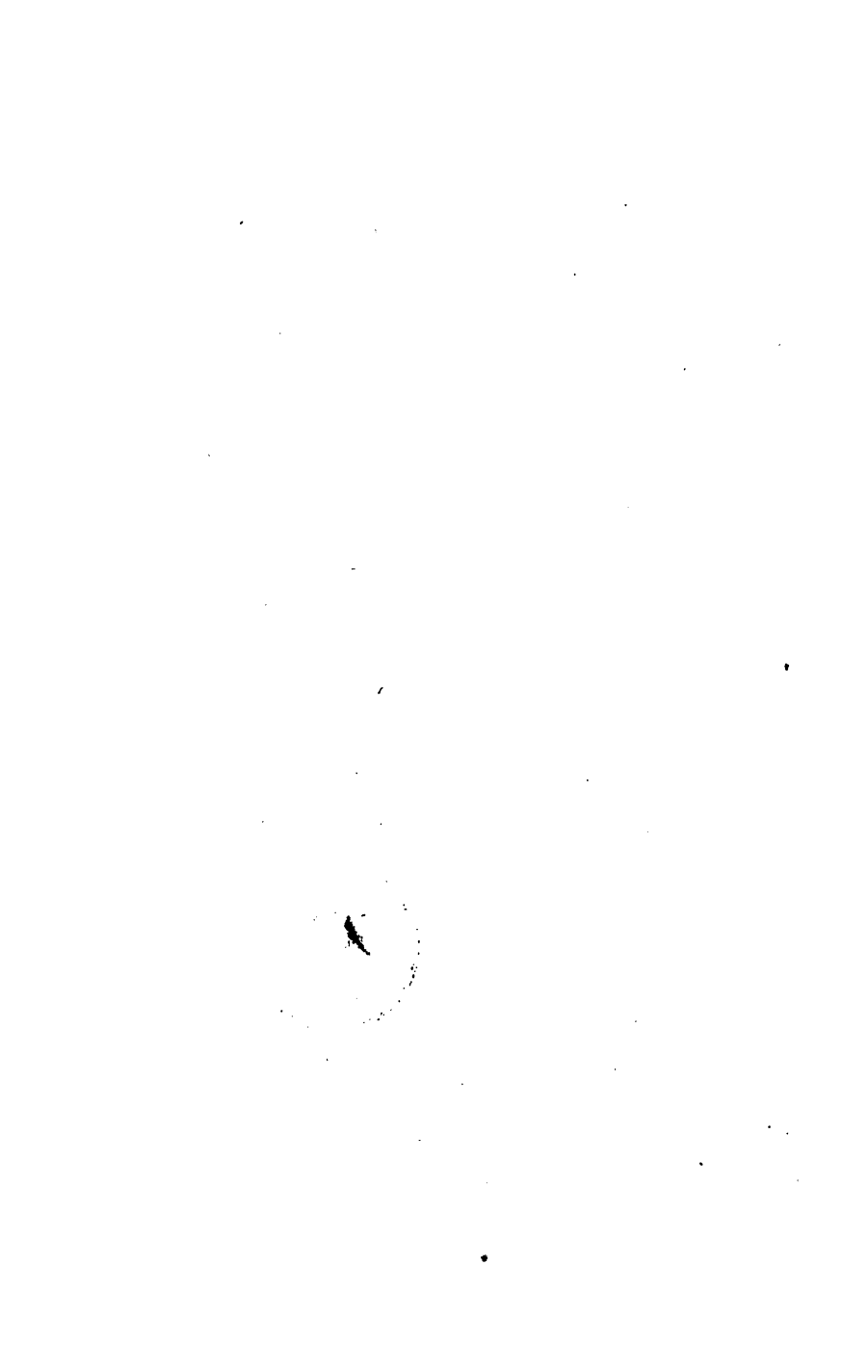
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DIRECTIONS
ON
PRACTICAL AGRICULTURE,
FOR THE
WORKING FARMERS IN IRELAND.

ORIGINALLY PUBLISHED
IN THE CORK SOUTHERN REPORTER,
UNDER THE SIGNATURE OF "AGRICOLA."

BY
THE REV. WILLIAM R. TOWNSEND,
Rector of Aghadda, Diocese of Cloyne.

"Much food is in the tillage of the poor, but there is that is destroyed for want of judgment."

SECOND EDITION, REVISED.



DUBLIN
WILLIAM CURRY, JUN. AND COMPANY,
LONGMAN, BROWN, AND CO. LONDON.
1843.

29.

DUBLIN
PRINTED BY J. S. FOLDS, SON, AND PATTON,
5, Bachelor's-walk.

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DIRECTIONS

ON

PRACTICAL AGRICULTURE.

THE writer of these directions, in laying before the working farmers the manner of cultivating those crops which he knows will give great increase of produce, has only one object in view—the welfare of the people.

Were the practice that will be detailed in the following pages adopted by the occupiers of the soil, there would be a great increase of employment for the labouring class, and a ten-fold increase of produce for the farmer. The writer is anxious to show the farmers how they can so increase the productiveness of their land as to enable them to meet all their demands, to enrich their farm, and add to their substance; and he trusts the farmers will follow the directions now given with spirit and with judgment. In full confidence of the advantages that must follow from cultivating land in a different manner from the present system, plain practical directions will now be given on the following subjects :—

Cultivation of mangel wurzel, Swedish turnips, potatoes in drills, rape, clover, lucerne; making manure; draining and irrigation; feeding cattle; cultivation of moor or turfy land; trenching the land, and the advantages of doing so; and planting trees.

He trusts that the intelligent farmers will be awakened to their own interests, to the welfare and the elevation of their families, and that they will give these directions a fair consideration and an impartial trial.

MANGEL WURZEL.

The field fit for this crop is one which has borne a corn crop the year before. As early as you can, after the corn is cut, plough the field in the manner shown in the directions

for trenching, and manage it through the autumn and winter as directed under the head of the rape crop. By earthing the rape with the plough, or if you don't plant rape, by ploughing up the field into high drills, you have it drier much sooner after rainy weather—a great object gained in getting in an early crop. In the months of March and April, (the earlier the better,) after your rape is off, put out eighty horse-loads of sand or forty barrels of lime to each acre. As soon as the lime is in powder, spread and plough the ground and harrow it well; gather off all weeds the harrow will collect, and by two or three harrowings and hand-picking at every stirring of the earth, you will get away the greatest enemy to this crop—weeds. Old lime compost is better than fresh lime; but deep ploughing and harrowing will remedy the defects of fresh lime. The best way to put out the dung is, first to mark shallow furrows along the field in the direction your drills are to run, at sixteen feet six inches asunder; the space between is just sufficient for six drills at two feet nine inches from centre to centre. When all the field is thus marked, then draw out dung sufficient for every space, dropping a load at once on the line. Putting full one hundred loads of good dung to the statute acre. When there is enough for the first, go on to the second, and complete the dunging the field: first, cover the heaps as they are dropped with earth, to prevent their being dried by the weather; then open the drill at the farthest side from the first row of dung. Plough as deep as possible, and return in the same, deepening the drill. As soon as the plough begins to return in the first drill let all the hands be ready, having first placed them in different parts of the line of dung, and as the plough passes let them put in the dung—women, men, and boys—with pikes, baskets, and shovels, throwing in the dung fast, so as to have the drill finished by the time the plough passes, finishing the second drill. There should be a man and woman stationed at every fourth heap. Open the drills, and put out the dung in this manner all through the field; then cover the drills as speedily as you can, that the dung should be exposed to the air as little as possible. Every hour that it is exposed it loses valuable qualities. The drills are best covered by ploughing back on the dung the earth thrown out in the opening. When covered flatten the tops, drawing a harrow inverted over them, and then sow the seed thus. The earlier in April the better—the seed should be all sown before the first of May. The seed being first steeped in soft water for forty-eight hours, and

then dried with wood ashes or dry sand, scribe a line, in the centre of the drill, not more than one inch deep; then drop a seed at every six inches; a girl or boy can do this, giving a piece of stick six inches long; then cover them, turning, in the earth, and roll the field very lightly if the ground is quite dry. It would be an improvement if, after the tops of the drills are levelled, a good round hole was made, with a large dibble, to be worked with hand and foot as a spade, at every nine inches, and girls to fill these holes with rotten dung, or the seed to be sown in them. The crop would, when every second plant was drawn, stand at one foot six inches from plant to plant. Be particular to do all this when the ground is dry. Wait any length of time rather than sow any seed or plough when the ground is wet. The earth hardens—the seeds often rot; if they vegetate, the ground is so clogged about them that they cannot grow well. All crops are injured by so doing, and some totally lost. It is a very good mode to make holes for the seed as follows:—get a very small roller which a boy can easily draw, and insert in this iron plugs projecting two or three inches at six inches asunder, or as you intend the plants to grow; draw this on the top of the drill and the holes are made most regularly and expeditiously. When the plants are well up, pull away all extra plants; there should be only one in each place; in a few weeks stir the earth between the drills with a horse-hoe, or stripped plough, taking the earth away from the plant. A stripped plough, with a piece of sheet iron filling up the space between the head and the coulter, and fixed on each with bolts and nuts, so as to be taken off and on, prevents the earth covering the plant—the coulter should all but touch the plant. When the plants begin to crowd on each other take away every second plant, and your main crop will stand at one foot from plant to plant; if they are left closer, the plants will be small and you cannot work between them at a less interval. In a very valuable treatise on villa farming by Kelly, it is recommended to have the plants one foot and a half asunder; they should be this distance in rich land or where highly dunged. If you intend to transplant, dig up the plants, and, when putting down, dig the ground very deep, put in plenty of dung, and take care that the tap root is not bent, also keeping the plant well above the ground. If the weather is dry, shade them with branches of fir for a few days; they will, if well done, be nearly as good as those from seed; then plough again between the drills, and hand-hoe between the plants,

taking away the earth so as barely to allow the plant to stand. Repeat these two proceedings with the plough and hand-hoe a third time in the course of the summer ; keep the crop perfectly free from weeds, the earth very loose, and as much taken away from the plant as you can. In fact, you cannot plough too often—the looser the ground is kept the better ; and you will find the application of lime of great efficacy in carrying out this desirable object. Without doing this no quantity of dung will give you a good crop ; but if you do as directed you may be sure of thirty to forty tons per acre, or more if your ground is good. As soon as the outside leaves begin to droop, strip them off, taking only a few at a time off each plant : they will give you quantities of feeding for pigs, cows, and sheep, and will give plenty in your farm-yard from 1st September to 1st December ; and by keeping your pigs, cows, and sheep in house at night, and giving them plenty of straw and sand, you will make quantities of dung. In December cut off the heads, and then draw the crop, pulling the roots only in dry weather, and pit them as you do potatoes : protect them carefully from rain or frost, as either destroys them when they are pulled. One acre of land formed into drills at two feet nine inches asunder, and mangel-wurzel plants left at one foot asunder, will contain fifteen thousand plants. The side of a square acre is two hundred and eight feet, in which there will be seventy-six drills of two feet nine inches asunder. Multiply seventy-six by two hundred and eight, and the produce is fifteen thousand eight hundred and eight. If they weigh only five pounds a plant, there will be thirty-five tons, five hundred weight, two quarters, twenty-four pounds an acre. Every pound additional that they average throughout will be seven tons, one hundred and six pounds, and any farmer that does as directed may be sure of having this quantity per acre. I now repeat the directions to make them simple and to confirm them upon your mind and memory. You must plough the field before Christmas very deep with a double furrow—that is, one plough following another in the same track, ploughing down to the bad soil, and thus have all the good soil at work ; then manure with sand or lime. In spring, manure with one hundred loads of dung to the acre ; the weight of your roots and leaves greatly depends on the quantity of dung. Steep the seed for forty-eight hours before sowing ; then dry with sand or ashes ; thin the plants to at least one foot from plant to plant ; keep the ground clean, free from weeds, and loose by frequent ploughing ; take the

earth away from the roots as low as the tap roots, and you will find you never had so profitable a crop; the leaves will feed your cows, pigs, and sheep for three months; they are as good, if not better, for pigs than raw potatoes; the roots, raw and split, will feed your cows from 1st December to 1st May in a manner they never were fed before, and boiled or steamed they are good food for pigs, horses, or cows, and are better for all than raw, especially for fattening cows. Independent of the value they are to a farmer, by supporting his cattle in the best way, they are worth sowing, for the immense quantity of manure he will be able to make, by feeding all his stock in the house for the greater part of eight months. The cows you turn out for a few hours a day on good grass. Feed three times, giving twenty pounds each feed—one, the first thing in the morning at day-break; one at breakfast time, and one feed at night. If you grow rape as hereafter directed, you need give no hay to cows who get grass. To cows fed entirely within, give four feeds of twenty-five pounds each, with a little hay after each feed, and rape at night. To cows or bullocks fattening, give two stone weight at each feed and four pounds of hay. One acre will amply feed five cows in this manner; and if the crop takes a quantity of dung, it will pay it back fourfold. We have, besides our own experience, the following testimony as to quantity:—Doctor Richardson, as mentioned in No. 5 of the Munster Farmers' Magazine, had thirty-six tons to the acre; Lady Salisbury had fifty-four tons, and another year sixty tons; Mr. Simpson had the same quantity; Mr. Heaton had fifty tons, and another had sixty-three tons, as mentioned in No. 17 of the same work; Mr. Philips had eighty-five tons; Mr. Crea had forty tons. This crop greatly increases the quantity and richness of the milk, and gives no unpleasant taste. Colonel Beatson grew mangel wurzel in St. Helena, and had roots which weighed thirty-nine pounds each; he had one plant three feet one inch in circumference: the root weighed sixty-three pounds, and with leaves weighed one hundred and fifteen pounds—this was a transplanted crop. Mangel wurzel can be transplanted into land which has borne a crop of early potatoes or winter vetches, by first double ploughing, then highly dunging. Take up the plants with a ball of earth; expose the root as little, and keep it out of the ground as short a time as possible; be sure the tap root is not doubled: either dip the plants in, or pour a mulch to each plant of cow, pig, or sheep dung, and shade them for a few days. But sowing globe or Norfolk turnip is better so late in the year

or transplanting Swedes. If the working farmers of this country would cultivate this valuable crop as now directed, they would be able to keep a considerably greater quantity of cattle than they do now, and these in the best condition; and the man who has but one acre of land could keep a cow.

**DIRECTIONS FOR THE CULTIVATION OF SWEDISH AND
OTHER KINDS OF TURNIPS.**

The ground for these crops is to be managed as directed for mangel wurzel. The first and most essential is double ploughing to deepen the soil from fourteen inches to one foot six inches. The seed of Swedish should be sown as early in May as possible. In June sow yellow Aberdeen and hybrid. In July sow red and white Norfolk and globe. These latter kinds do not require as much manure as the Swedish, but they are not to be compared to them for fattening or general use. (Any of these crops, and also mangel wurzel and rape, will grow to a large size on mountain and turfy soil, if drained, grafted and burned, and manured with any earth, or lime, or sand and earth without dung)—after the dung is covered, it would be beneficial to spread bone dust on the drills; the seed is then to be sown thin; the plants should remain for the main crop at ten inches at least distance in the rows. The drills being two feet six inches. A turnip machine is the best to sow the ground; but for lack of one, a bottle half full of seed corked, a quill cut at both ends run through the cork, will, with a careful hand, distribute the seed regularly, but by no means as well as the machine; or it may be sown on a scribed line, thinly, with the hand. It will accelerate the vegetation if steeped before sowing, and mixed with sand or ashes. Then, lightly roll or pack with a garden shovel, the seed not to be buried more than one inch. When the rough leaf appears, thin out, leaving one plant at every foot, throw all the rest away. When well up and strong, scuffle or horse-hoe between the drills, and hand-hoe between the plants: the hoe will effectually and cheaply cut away all the plants in the first instance, which are nearer than a foot. The hand must then reduce to a single plant. In a short time horse-hoe or scuffle a second time, and take the earth away from the plants, so that the bulb barely rests on the ground, the tap root alone being in the earth. The Norfolk, hybrid, and globe will be fit for use in the middle of October; they do not keep well, and should be all used by the end of January. Neither of

these will endure much frost. The Aberdeen, an excellent turnip, will keep till April. The Swedish turnip will keep till June; they must be housed, or stacked, or put in pits. The weight of the crop will be (if the ground is deeply ploughed, well manured, and the land kept clean and loose by hoeing and scuffling) from thirty to fifty tons. Clay land is the least fit for this crop: forty tons of Swedes have been grown already in this county. Use the white and red kinds for the first step in fattening; then the Aberdeen, and last the Swedish. All these kinds it is well known are prime feeding for sheep and cows. Swedish steamed are equally good for horses and for pigs; hogs eat them ravenously, and the fattest hog I ever saw was fed entirely on them. By feeding these crops on the ground with sheep, on land nearly barren, good crops of corn followed by clover, are often grown. One of the advantages of the turnip husbandry is, that the labour is required for them when there is no hurry about other crops, and the greater part of the work, hoeing, weeding, and drawing the crop, is done by girls and children, for whom now there is little employment; and consequently lazy and idle habits are acquired, and they do not know how to work hard when grown up. I attribute the superiority of the English labourer to the turnip husbandry. In *The Quarterly Review*, No. 72, October, 1827, page 429, a reference is made to the wise and benevolent example set by George III., whose memory will be cherished in the breast of every right-thinking man. The example he set at Windsor was followed by some who admired his philanthropy, and we may date the high state of English agriculture from his example. New modes of agriculture were adopted. Common wastes, moors, and fens, hitherto unproductive, were inclosed, drained and reclaimed; and the yellow grain, succeeded by valuable and bulky crops of artificial grasses, now waves its head over immense regions, which in all preceding time had formed the barren abode of the rabbit and the moorhen.

In page 295 of the same Review, it is stated, the north-eastern angle of the county of Norfolk contains much excellent land, intermixed with a large proportion of soil of very inferior quality. Until the commencement of the last century, this extensive tract of land continued very nearly in a state of nature, and its improvement dates from the introduction of the turnip as an object of field tillage. Until the beginning of the eighteenth century, this valuable root was cultivated only in gardens; but Lord Townshend, attending George the

First in one of his excursions to Germany, observed the turnip cultivated in open and extensive fields as fodder for cattle, and spreading fertility over lands naturally barren. He brought over some of the seed, and strongly recommended the practice which he had witnessed, to the adoption of his own tenants: the experiment succeeded, the cultivation of turnips gradually spread over the whole county of Norfolk. Since these improvements, rents have risen in that county from one or two shillings to fifteen or twenty shillings per acre. Some of the finest corn crops are now grown on lands which, before the introduction of the turnip husbandry, produced a very scanty supply of grass for a few lean and half-starved rabbits.

Mr. Colquhoun, in his Statistical Researches, estimated the value of the turnip crop annually grown in England, at 14,000,000*l.*; but when we further recollect that it enables the agriculturist to reclaim and cultivate land which, without its aid, would remain in a hopeless state of natural barrenness, that it leaves the land so clean and in such fine condition as almost to insure a good crop of barley, and a kind plant of clover, and that this clover is found a most excellent preparation for wheat, it will appear that the subsequent advantages derived from a crop of turnips must infinitely exceed its estimated value as fodder for cattle. In something less than one hundred years the agriculture which Lord Townshend introduced from Hanover, has spread itself throughout England, and now yields an annual return which probably exceeds the interest of our national debt; and though Lord Townshend was sneered at and called by the wits of the day, Turnip Townshend, he must be considered one of England's greatest benefactors: and with these facts before us, must we not deplore that the cultivation of so valuable a crop is unknown in this country by the working farmer, and that, consequently, with superior land, greater facilities of manure, and a superior climate, much of the land is unproductive, paying no rent and affording little labour. What wealth is lost from indolence and want of knowledge! One man herding a few half-starved cattle on hundreds of acres, which would afford sufficient occupation for thousands, feed and fatten one hundred times the number of cattle, pay twenty times the rent to the landlord, and produce corn for the citizen, and employment for the artizan. These crops now mentioned, rape, cabbage, &c. &c., grow in a very moderate temperature, being natives of a cold climate; corn and potatoes are natives

of hot countries, and require the heat of summer to bring them to perfection. Shall we confine all our labour, skill, and industry, to these crops, which exhaust and impoverish the ground, and abandon the cultivation of those crops which will grow in August, September, October, and November, which will improve the soil they grow in, and, by affording provender for a great increase of cattle, enable the farmer to make quantities of dung? Shall we lose all the benefit of the vegetation of the months of autumn, and all the advantages which arise from the cultivation of leguminous crops—from milch cattle, fat cows and bullocks, fat sheep, fat pigs, in ten and twenty fold increased quantity? All these would be abundant in this country, where now scarcely one working farmer has one fat beast of any kind except a pig. In the English farming every thing depends upon the turnip crop. If there are no turnips, there are no fat cattle, no fat sheep, no dung, no barley, no clover, no wheat; every thing is turned up for the turnip crop, upon which the whole system of Norfolk husbandry depends. The loss of an occasional crop of wheat, however serious, is but a single loss, and its effects are not long felt; whereas the loss or want of the turnip crop damages the whole system, and all its effects are felt in every subsequent crop throughout the course. What is said of turnip is equally applicable to mangel wurzel: this latter crop is in one view fitter for Ireland at present than turnips, as it will not be stolen; but why should our country be allowed to continue in such a state, that a crop which, if generally grown, would renovate it from its foundation, bringing industry, wealth, and comfort to every class—increased rent to the landlord—increased profit to the tenant—occupation for the labourer, for his wife, and for his children, cannot be sown, as it would be stolen; why not sow sufficient turnips to have them worth watching? A watchman will be kept day and night in an orchard not worth £20, and why not watch a field of turnips of equal value? They are stolen because they are a rarity. If they were sown generally there would be no theft. The law of society is the strongest law: let the working farmers adopt this system, appropriate at least half of their dung to the turnip crop; let all the respectable farmers do so, and it will soon become general. Let farming societies be established in every place, taking six or eight miles square or more for extent, and let the qualification for a member be his cultivating the turnip crop. Let landlords attend to the interest of themselves and tenantry, and henceforth look

to something else besides the rent! It is now a common saying, that we are a century behind England—this is disputed. Is it not true? Can we not do what the Norfolk tenantry did one hundred years ago? Let not this stigma be cast on Ireland any longer, but let landlords and tenantry give a long pull, and a strong pull, and a pull all together. Let government take an interest in the prosperity of the country, and assist those incipient efforts by a grant of money for a few years to such societies as adopt a proper system, and we will no longer be “a century behind England.”

RAPE.

All the cabbage kind being natives of a colder climate than ours, do not require the heat of summer to bring them to perfection. By cultivating these crops we can have two crops in one year in much of our land. Norfolk and such other kinds of turnips, cabbages, borecoles, savoys, and rape can be sown in land which has the same year produced vetches, corn, or early potatoes; or a meadow, if intended to be broken up the following spring, could be ploughed immediately on the hay being saved, and rape-seed sown; or by having rape-plants, or any of the above kinds, ready for transplanting when the corn is cut: if the farmer is alert, has his dung ready as soon as the corn is cut, he will have a second crop as valuable as the first, instead of the field lying idle until spring. Mr. Stuart—of Wellfield, near Clonakilty—in the year 1811, cut his vetches in June, and from that until the end of July he ploughed and harrowed the field, planted rape-plants in drills at two feet nine inches, and the same from plant to plant. To each plant he gave a shovel full of dung; the second week in September he earthed them with the plough; in the second week in October the drills were not discernible, and the plants in every way touched each other.

A gentleman ploughed a meadow (when the hay was saved) in July into twelve-foot beds, gave them a light hacking, then covered the seed from the furrows, and rolled. The field was four acres; the rape supplied twenty cows from the 20th of February to the middle of April. The rape was mowed and brought into the stall; the produce of these four acres saved thirty pounds' worth of hay, to say nothing of the great quantity of dung.

DIRECTIONS.—Sow the seed in succession once a fortnight,

beginning in the middle of May and ending in July. When they have six or eight leaves, transplant out of the seed-bed into rows, six or eight inches from plant to plant, in good ground. Seven thousand plants are required for an acre; one of those plants are better than ten long-shank plants drawn up in the seed-bed, and they are much less likely to start. When the crop is off your field plough it all with a double furrow—one plough following another in the same furrow—to deepen the soil to the greatest possible depth: without this there cannot be a prime crop; but of this hereafter. Then draw out dung, dropping or falling the loads in rows, every row to suffice for sixteen drills, (at two feet nine inches,) at each side of the row: fifty large loads, not less, are required for an acre. Give but little dung and you will have but a little crop. The dung will be in the land, and will greatly benefit the ensuing crop. When the dung is out, open drills—not deep; then put out the dung with shovels, at two feet six inches asunder, in the drills; boys, &c. slipping plants under the dung, one in each place; then lightly cover the dung with shovels. When the plants get strong, earth with a plough a second time lightly; the second as much to be thrown in as you can without covering the heart; when you want fodder cut down every second plant; when these are out, cut every second drill, and by the time the remaining drills are used, the plants you first cut will be fit to cut again. Each plant will weigh from five to twenty pounds, according to season, management, and manure. What a fine state of tilth your field will be in for the next drill crop; and the weeds will be in a great measure eradicated. If you will not plough as directed, nor give a sufficiency of manure, nor plant your crop in proper season, your crop will not be worth the labour. Your bad example will prevent others from planting rape when advised: you will do yourself no good, and your neighbours harm. Do it well or not at all. Another good plan, and practised in many parts of Ireland, is to plough in July and even in August—stubble, meadow land which has just borne a crop of hay, lea land intended for lea oats, and moor or mountain, (first draining it perfectly and grassing and burning mountain,) into twelve feet beds; top dress with sea sand or a rich compost of lime and earth, giving a good portion to the furrows (the lime compost should be made some time previous, and turned twice or three times); then back the beds, sow the seed, and cover from the furrows; then roll. In December, January, and February mow and give to

your cattle, or feed with sheep during these months ; then close up the field and let the rape go to seed : the seed often pays eighteen pounds per acre, besides the feeding a lot of sheep for three winter months. Care must be taken to watch the crop when near ripening, to drive away small birds, and as it ripens irregularly and sheds the seed, it must be cut when near ripe, and thrashed where it is cut and not carted to a barn. The seed is bought for export. Mr. Wilkes, who cultivated it extensively at Ballincollig, made nine pounds an acre of the seed from gravelly land—the most unfit for it. He exported the seed himself. Oil is extracted from it ; the refuse is made into rape-cake—it is used as manure for wheat and turnips, half a ton to the acre. The effects are very great ; it is broken very small and sowed by the hand, or with a small scoop.

Follow these directions, working farmers of Ireland. You will be enabled to feed and fatten sheep and cattle in winter better than in summer ; you will be enabled to multiply your cattle greatly ; to increase your dunghill to an extent you have no idea of ; to have two crops in one year from much of your land ; to benefit your countrymen by being able to give them employment for every age, profitable to yourself and to them. Instead of being obliged to leave much and the best of your land for meadow, you may almost cancel meadow out of your system ; and only your clover and ryegrass crop will be used for hay ; and if old meadows are worth old gold, new meadows will be worth new gold—little hay will be grown ; that only for hunters, saddle, and carriage horses in towns, the farmer, finding those other crops much more profitable, will have but little hay for sale. There will be much demand in the towns and a scanty supply, and what you have to sell will then be worth sending to market.

MANURE.

As a carpenter is known by his chips, so is a farmer by his dunghill. Dung is the farmer's magic-wand. Making manure is the foundation of agriculture, and he who has the honest ambition of being a good farmer will give every attention to the making and collecting manure, as the first and most essential step in any system. A person desirous to learn agriculture from a well-known agriculturist, asked him what were the most essential requisites for a farmer ; he replied, there are three essentials without which nothing can

be done; and the first of these is dung, the second is dung, the third is dung; and he who has these three need have no fear of success. The following plain directions, if followed, will add considerably to what is, in truth, the farmer's wealth—the dunghill. It will be said, all who deserve the name of farmer knows at least how to make dung: but the contrary is the fact; scarcely one knows any thing on the subject, either in theory or practice.

DIRECTIONS.—Make up your straw daily, as it is thrashed, into stacks; and when you have a quantity, make up in large ricks, and thatch it as carefully as you do hay. Never waste any straw, or allow it to be spread about the yard or on the road: it would be far better to plough it into the ground dry. One load of dung made as now directed is worth five made of straw wet and rotted with rain, of which the principal beneficial qualities are lost and washed away. Keep your cattle as much as possible in house, winter and summer—your horses always; your cows should be in stall the entire day from the 1st of May until the 1st of November, and at night the other months of the year. Let all have plenty of bedding: where sand is to be had, lay always a thick layer first on the floor, and especially fill the channels; then cover with a good bed of straw. Turf-mould dry, is still better than sand. If neither can be had in quantity, there is no place where sufficient of one or other cannot be got to lay in the channels and soak up the urine. Clean out the house at least every second day; put back into the stalls any that is not wet; the stables should be cleaned every day, morning and evening. Once a week throw water on the floors, and sweep them out clean, and sprinkle the floors with powdered lime. If this is done every day in stables it will destroy the very unpleasant smell, and prevent the formation of volatile salts, so injurious to the sight of horses; but gypsum is much better, as it would preserve the ammonia, and at the same time prevent the foetid smell. It is a healthy, a cleanly, and a profitable practice. Make your dunghill as follows:—First make a platform of earth in some roomy, vacant place (turf mould far better), one foot or more high, and twelve feet wide—you can add to length as you want; throw the dung on this platform, say a foot thick, then cover with earth or turf mould, and then a layer of dung. Continue making your dung in the same manner every day all the year round. A foot of dung covered at once with six or eight inches of earth or turf mould. Bring out the dung as soon as cleaned from the

houses. If your hurry is so great that you cannot do so, cover it there at once with earth. Go on raising the heap as long as dung can be thrown up with shovels, but never let cart or wheelbarrow go on your dunghill. When to its height, cover the sides with sods and mould or earth packed close; then add to the length of your platform. It would facilitate your spring work if your dung-heaps were in different places in your field. It is a wasteful system and a dirty and slovenly practice to throw dung out of the cow-house and stable door, and leave it there in summer to be dried up, all the fertilizing gases to evaporate and contaminate the air you breathe; or, in winter, the enriching qualities to be washed away, and destroyed by the rain, or deadened by a superabundance of cold water. It is a dirty, barbarous, beastly practice making dung in the farm-yard near your house; the air becomes unwholesome, the house cannot be kept clean. Dung is brought in on the shoes and clothes, and the health of the family injured and the sight and the smell offended. Your yard should be always clean, and swept once a week at least with a broom. Have a pit at the lower end of your yard, and as far from the house as you can, made water-tight, and throw into it all the slops, the water running from the weekly washing of the cattle-houses, soap-suds, &c. &c., and then throw in earth-sods, weeds which have not formed their seeds, refuse straw, &c. They will be good dung in a fortnight, and what is now wasted, and a nuisance, will add to the quantity and quality of your dunghill. Keep your sheep in a house or yard at night, put sand or litter under them; their manure is well known to be most stimulant. Pigs ought always to be kept in the yard—their dung is the best; they should be well littered and their houses often cleaned. If you manage in this manner, you may be sure of having more manure than you will want. Provided your cattle are abundantly fed, you may be certain of having enough of manure for one acre from each horse or cow, and for every six sheep and six pigs. The weeds will be cut before they shed their seed, and will soon be eradicated from your land; and those matters, which before were useless and injurious, will come out from the pit once a fortnight of much value. The earth put in the bottom of the dung, and in the alternate layers, if not trampled on, will imbibe the juices and fertilizing gases, and will prevent the dung heating too much and consuming both quantity and quality. Dung put out from the houses, and treated as now directed, will diminish

very little in quality; but, without the foundation of earth and the alternate layers, a horse-load of fresh dung will heat and consume itself to less than a wheelbarrow full, and its best qualities be lost. Cattle should be always well fed; if it were only for the increase of the dunghill. The dung of well-fed beasts is much more enriching to the land than that of half-fed—the dung of carnivorous animals is better than that of those fed on vegetables; an additional proof that half-stock is whole profit, whole-stock half profit. By giving every animal plenty of litter, and keeping its stall clean, it will tend greatly to the improvement of his condition, and increase the dunghill. You know that cleaning is half feeding. A gentleman who followed the old system of manure-making, or rather manure-neglecting, had every year to buy manure, and draw it at heavy expense: he adopted the plan you are advised to follow, and, though he has not increased his stock, he has now plenty of manure for all purposes, and some to spare for top-dressing meadows. Every one who has adopted the system has found great benefit. Lime is valuable as an assistant, but not alone. Lime spread, when in powder, on a field well ploughed, will greatly improve the quality of the soil, increase the corn crop, and improve the grasses. Forty barrels per English acre is a sufficient quantity, or two dressings, at an interval of five years, of thirty barrels per acre, is perhaps better—the barrel contains four cwt. Lime mixed with old banks, cleaning of ponds, and spread on lea-land, intended to be broken up, will greatly improve the subsequent crops. Lime destroys all sourness or acidity: put a piece of lime into vinegar and it will take away all sour taste. In like manner, it will sweeten the herbage. Lime marl, found in many parts of Ireland, is an equally valuable dressing. Sea-sand acts in the same manner—they are all valuable as helps, but they are injurious if dung is not applied to the green crop; they stimulate the action of the land too much—they destroy the vegetable, and bring it into immediate action: hence its great benefit in old lea lands. Oar-weed is known to be a most beneficial manure: the best way to use it is after the potato crop has been well dunged—as soon as the stalks are coming up, to spread it on the ground, and cover with the plough when first earthing. Malt-dust is equally valuable, but good only for one crop. It might be beneficially applied in the same manner recommended for oar-weed. It forces great crops of hay, and would, most probably, if sown after the turnip or mangel wurzel, increase the

crop, if first well dunged. Bone-dust has been proved to be a highly valuable manure for the turnip crop. All agree that it is better when, being mixed with earth, it has fermented. There is no reason why it should not be equally effective for mangel wurzel and potatoes. Mr. Deeble's very valuable pamphlet on bone manure explains its effects, and directs its application. Burnt clay is a good manure for one crop, or for topdressing clover or meadow. Its preparation is cheap and simple. Have a good many sods dried, make four or five heaps close to each other, light them with a few faggots or sticks; when well lighted, cover with more dry sods, and when the fire is fully established, then cover well with clay: prevent the fire from breaking through the sides by putting up rods. Put clay on the top morning and evening. When the fire comes to the top the earth gets black: put on only a little at a time, but never let the fire break out at sides or top. At small expense you will have a large heap. This practice is very good on clay or heavy lands, or moor and mountain. Where marl is to be had, it is a very good practice to burn it in this manner.

Expense of Manures for one Acre.

Soot, 25 barrels per acre, first cost,	-	£0	2	0	per barrel.
Lime, 40 do. do.	-	0	1	0	do.
Sea-sand, 80 horse-loads,	-	1	5	0	
Bone-dust, 25 bushels per acre,	-	0	2	8	per bushel.
Malt-dust, 25 bags per acre,	-	0	3	0	per bag.
Rape cake, half a ton per acre.					

I would recommend to appropriate one man exclusively to manure, and, at leisure, after cleaning house and putting on the heap, to collect grass weeds, &c. out of plantations, dykes, and such like. Let him never be taken from it: a donkey or a small horse would do for a very good-sized farm. If he has constant employment, he will be worth ten times his daily hire to his employer.

PLOUGHING AND TRENCHING.

A deep soil is requisite to have prime crops of clover, lucerne, mangel wurzel, and Swedish turnip, and most beneficial for every other crop. The ploughing in this country is much too light. The dimension of the sod recommended for ploughing lea-land for corn, viz.; a five-inch furrow and eight-inch sod is considered depth enough for all descriptions

of land. Hence our crops are inferior both in quality and quantity. Now observe the following directions for ploughing stubble land, intended for your dung crop the following spring. As soon as possible after the corn is cut, in order to facilitate the ploughing deeply, and also to have a quantity of earth to put in layers between your dung, mark beds of forty feet wide; in the centre of each bed plough a trench four feet wide; carry all this to the head land; plough again down to the bad soil, and carry that earth also away. Let this trench be the centre of each bed; then have one plough following another in the same furrow, or the same plough going twice in the same furrow, so as to plough the ground from a foot to a foot and a-half deep. If the first plough takes all the good soil, then have a plough without a mould-board, to deepen the subsoil to the above depth. By ploughing the three or four first sods, a turn or two additional in the centre furrow, the trench will be filled to a level with the remainder of the ploughing. Plough ten feet at each side of every trench, always keeping one plough following another in the same track, and then you will have beds ploughed all through the field, twenty feet wide, and an equal number of spaces of equal size unploughed.

You then begin on that which was not ploughed, all through ploughing with the double furrow, throwing the sod now to the beds that are ploughed at each side. By this mode the beds are forty feet wide, and no turn on the headland more than twenty feet. It would be great ease to the horses if a few men were kept to shovel over a furrow occasionally, to clear from the mould-board, and to take up stones which impede the plough, throwing them on the surface, and then at leisure drawing them off the field. There will be less labour to the horses, and a lighter draft, than in the present mode;—as the sod will fall off into the deepened furrow there will be less pressure on the mould-board, and no load of earth carrying from end to end of the field, which, in the present practice, adds greatly to the labour of the cattle; a field once well done in this manner will be much easier worked in the subsequent cultivation.

In small lots trenching can be done by the spade and shovel, by clearing out one trench at the end of the field, the whole length, then digging or loosening with a pick-axe the bottom spit of bad soil, but not shovelling; then throw the top of an equal trench of land all along on

this loosened bottom, and the second spit over that; then work up the bottom as before, and so on through the field. This is more effectual than the ploughing, but much more expensive.

The advantages of trenching, or very deep ploughing are as follow:—Deep soil is requisite for all tap-rooted plants; these plants draw nourishment from the ground in proportion to the length they can push their shoots, both down and laterally. Every root throws out small fibres. It is through the fibre that nourishment is brought to the plant. The greater the number of fibres the greater the quantity of nourishment brought to the plant from the earth, and the larger it grows. If the ground is deep and loose, the tap root must be long, the fibres numerous, and able to push themselves in all directions seeking for nourishment; but if the ground is shallow, or hard, the tap root must be short, and the fibres few. If the ground is hard about them they cannot enter the soil and extract nourishment: the plant will then be small, and of little use. The greater the quantity of pulverized earth the fibres and roots have to collect from, the larger and the more nourishment in the plant.

Again, in shallow or hard ground the rain does not enter the soil; it either rests on the surface, where the land is flat, thereby destroying vegetation,—if it enters but a little, and remains near the plant, they will be yellow, sickly, and never come to any good,—or it runs over the hard ground, doing no good, often cutting it up, and carrying away the surface. When the rain from the heavens (sent us to enrich the soil and promote the growth of plants) is abundant, the plants become sickly, and often perish altogether. In dry weather they perish, because the winds and heat attract all the water that is in or near the surface, and the plant perishes from lack of moisture; while, in the land which has been ploughed deep, with a double furrow, or trenched with a spade, the rain enters into every part, remains in it, and is extracted from it by the roots of the plant daily supplying them with a sufficiency of moisture. When dews fall, the same takes place; it lies on the surface of the hard ground—it penetrates into the loose, porous, pulverized soil; it is drawn up by the morning sun from the one—it is inhaled by the plant from the other. You perceive all light soils—the sides of hills, and such like, parched to, and brown, in dry and hot weather, giving no food for

cattle; while in the same weather you see deep soils green as a leek, or the crops on them vigorous and flourishing; just because one has no depth of earth, and the other has.

Again, by trenching or ploughing deep with a double furrow, you put down to rest a worn-out soil, impregnated with weeds and seeds of corn kale, full of slugs and worms, and eggs of insects, which injure and often destroy crops, and you bring up a new, fresh, vigorous, unexhausted soil, what the gardeners would give their eyes for, what is called virgin earth; and you, also, by deep ploughing mix soils of different qualities, which correct the defects of each—the stony and rubbly soil correcting the heaviness of the clay surface, or the tenacious subsoil correcting the too great openness of the upper surface; as the upper and under soil are generally found to differ in texture. This process is imitated frequently by carting earth of a different quality on fields, at considerable expense; and two fields, both good for little, one a heavy, the other light and gravelly, were made superior land by this process alone; and by putting on lime, the finest crops of wheat were grown on them. This result would have been obtained at far less expense by deep ploughing or trenching.

A farmer who puts down the old soil and brings up the new, may be compared to a farmer who gets rid of his old, lame, broken-winded horses, and lays in a stock of young ones. His land is then as fresh as a four-year old. The benefits of deep ploughing and trenching will continue for many years; divide the expense by the number of years its benefits will extend to, say ten years only, and the extra expense will be as nothing; but there is actually a saving of labour by it,—in a drilled crop, in the difference of expense of weeding, for there are few or no weeds—in the saving of ploughing between the drills, in the scuffling and hoeing. The surface, for an inch or so, may cake from wet; it only will want to be stirred. The under soil will not get hard for a length of time. How different from ground not so treated, which in dry weather gets so hard that an iron plough, with a man leaning on it, will barely enter the ground. In ground properly deepened, every growth of the root is in deeper and better soil, refreshed by rest, where the weeds have rotted, and are now food for plants; instead of, as before, their destruction. Where does the root go? Is it not always down? Did you ever see a root grow up? The second, or even the third,

spit of earth will suffice to cover the seed from the weather and the birds. The roots quickly strike down, and get every step more and more into better soil: instead of, as in land lightly ploughed, after going down a little way, eight or ten inches at most, it is stopped by hard, impenetrable soil, and its growth retarded. Then, in your clover crop you will have great benefit; it will be a much heavier and a much cleaner crop; none of that crows-foot, which neither cow or horse will eat; all colts-foot and root-weeds destroyed, of which we see now our clover crops full, and then the succeeding wheat crop will be far better. The number and size of the clover roots, which are particularly nutritive for wheat, will give the crop great nourishment. The wheat extends its roots much farther than is supposed: here they will have no obstruction, and the cutting, in the harvest, will be like the cutting of a loaf.

Try one acre even, trenched, or deeply ploughed, with a double furrow, and another ploughed as at present; compare the result, and follow the practice which makes the greatest clear return. But some may say, the neighbours will laugh at me; and because every one goes on the present system so will I. Let those laugh that win—you will soon find the laugh to be on your side. Their following an old practice, because they know no better, when a better can be followed, is no reason. It may be an argument for a horse which is drawing its load through the deep ruts, because other horses are going before him in the same track, while the smooth road is alongside; but it is no argument for a man, who is given by the Almighty a mind to reason and to compare, and judgment to select. I will call to your recollection the last advice of the dying farmer to his sons. They believed him to be very rich, and they asked him where his money was? He replied that he forgot; but that he buried it two feet under the surface of one of his fields. They dug all the land, and turned it over to that depth, but found no crock of gold, but they found the philosopher's stone. For the next and subsequent crops showed them their father's meaning, as their crops proved superior to all others; the increased produce of the soil brought them wealth, and the character for industry they acquired made them sought for as tenants by all the landlords around them. A word to the wise is sufficient for you. It may enhance the value of this practice to state, that among the many valuable productions

of the revered author of the statistical survey of this county, he recommended it, and wrote a valuable letter on the practice, which was published in THE MUNSTER FARMERS' MAGAZINE.

ROTATION OF CROPS.

Having already given directions for the cultivation of those crops which are essential to good husbandry, and although there is nothing new in what I have written to several of the gentlemen, still much information is wanted by many, and by most of our working farmers. As I write for them, I would not bring before them any practice, or advise them to cultivate any crop which I did not *know* had succeeded in their own county, managed as directed. Therefore, I repudiate all novelty, and will write nothing but what has been proved.

The next necessary information is the rotation of crops. Perhaps the simplest is the best:—Whatever the size of the farm, divide the arable part into five divisions; throw down all other fences, and have but five fields—in the following rotation. One in lea wheat or lea oats; one in a dunged drill crop—two thirds of it, at least, to be under mangel wurzel and Swedish, or other turnip; a third division under a barley or rye or oat crop, with clover-seed, sown to come in next year; the fourth under clover and rye-grass, to be ploughed up for wheat in October; fifth division for hay and summer pasture. By soiling with the clover, the cattle will lie lightly upon the pasture part, and in winter there will be a full bite for milch cows—more profitable than meadow. Suppose a man has thirty acres, each of his fields will be six acres, and if he follows the system, he will, every year, have two divisions in barley and wheat, twelve acres; six acres of clover, which will support, in the best manner, thirty head of cattle, and thirty pigs, for six months; five acres of mangel wurzel, Swedish, and other turnips, and one acre of potatoes, which, as I suppose the farmer to kill most of the pigs for his own use, to eat bread and milk for breakfast, and to use potatoes only with other and better food, is enough, and more than enough, for any family. He will have, besides, six acres of the best pasture and the furze of his ditches. With these he ought to keep, in the best manner, thirty head until his spring crops come in. If he has a spare acre of lucerne and orsane (as cow parsnip) growing in the planta-

tion, he can keep them well, and also young stock to eat the refuse. Let the farmer increase or diminish the size of his fields according to the extent of his farm, and follow this system, and he will have the return for it in the same proportion. On thirty acres, managed as directed in the preceding pages, and according to this system, there will be every year as follows :

Twelve acres of corn, worth £8 per acre, -	£ 96 0 0
Six acres of clover, feeding thirty head for six months, [say nothing for the pigs, as they belong to the farmer's wife to kill at home,]	120 0 0
Thirty cows, at £4 a head for six months, from mangel wurzel, turnips, &c. . - -	120 0 0
	£336 0 0

There will be, besides, the feeding from the rape transplanted in the stubble which is double ploughed for the spring dung crop the following year, the furze of the ditches, the hay, and the pasture, besides one acre of potatoes. One pair of horses can surely be fed with the over-quantity. This will be said to be a fanciful theory; that it would be impossible for a farmer to keep thirty cows on thirty acres in such a manner as to pay £8 a head per annum, and to have as much corn as would pay his rent even if it amounted to £3 an acre, and to be able to have bacon every day for his dinner, and bread for his breakfast, and, also, that his farm would be getting better and better every year; but the only error of the calculation is, that it is below the fact. Mr. Kelly, in his excellent work on Villa Farms, states the gross produce of twenty acres under his management to be £297, or £14 17s. per acre; and a gentleman who follows his directions states that the result exceeds his statement. This is not surely more improbable than would have appeared some twenty years since, if it had been stated that we could go to Bristol from Cork, against wind and tide, in twenty-four hours; that pigs, bullocks, and sheep would be carried at the rate of thirty miles an hour; and that Glasgow, Liverpool, and other towns, would be supplied with vegetables from the county of Meath; and yet this is now daily done. The foregoing statement is by no means visionary, but admits of abundant proof of its certainty. Our farmers require instruction, and it is the landlord's duty, as well as his interest, to set a better system going. Now, with difficulty, he gets

twenty or thirty shillings an acre rent from a man comparatively a pauper ; whereas, he would be just as certain of getting three, four, or five times that rent in some cases from a man independent in circumstances. He will greatly promote the comfort, happiness, and prosperity of those who supply him with the means of getting all he wants ; he will greatly add to his own happiness from a consciousness of having done his duty ; he will add to his health by useful occupation, and by his mind being actively employed in doing good ; and he will greatly add to his wealth. Let the Irish farmer follow the directions in the work now published ; let him take advantage of the great blessings the Almighty has thrown in his way ; let him draw down blessings on his industry, by sanctifying God's sabbath, avoiding, as he would poison, those pests and bane of our country—public-houses, where God's name is hourly profaned, health ruined, money thrown away, and where every crime and every sin is engendered ; let them learn to set value upon their time—never to go to fair or market except on business, and to leave it at once when the business is done. Study to be quiet and to mind your own business, and, with God's blessing upon you and your country, no country will be equal to Ireland, and no people superior to Irishmen.

CULTIVATION OF CLOVER, VETCHES, AND TRIFOLIUM INCARNATUM.

Among the leguminous or green crops, red clover possesses advantages surpassed by none for spring and summer feeding. Its foliage is very thick—it effectually shades the ground and smothers weeds. The leaves which fall improve the land. Its roots are highly beneficial to the succeeding wheat crop. It throws down a long tap root, and draws much of the nourishment from soil lying useless to other plants. It also draws by its leaves much nourishment from the atmosphere. It gives the farmer a power of feeding all his cattle in the house in the hot weather, and enables him to make quantities of dung as much as in winter. It will, if the ground has been previously ploughed with a double furrow or trenched with the spade, then abundantly dunged for the winter green crop, and top-dressed after every cutting, give three prime crops, and by ploughing-in the fourth crop you are ensured a prime crop of wheat. The cultivation of it costs little or nothing. No ploughing, harrowing, or rolling is necessary

for it that is not necessary for the corn crop with which it is sown. The best manner of sowing is, as soon as your barley is sown, the same day sow the seed ten pounds to the acre. Mark beds with a few sticks and sow these, sowing in one direction, five pounds to the acre. Then begin where you ended, and sow five pounds more to the acre, sowing in the opposite direction to the way you sowed first; then sow one bushel of rye-grass to each acre. Italian rye-grass is recommended in preference to any other; but, as the seed is dear, you can sow a less quantity. Then give a light harrowing and roll the field. It will facilitate the vegetation if the seed is steeped for a short time before sowing, and then dried with dry sea-sand or wood-ashes, or, if sown with wheat, harrow the wheat in the month of April in the direction of the beds; then sow your clover-seed; then draw the harrow reversed across the first harrowing, and roll. It requires no further labour until you begin to cut it. If you intend for hay, mow when the flower begins to wither. Give it very little turning; do not spread it out at all, but make it up into cocks the second day, and double them every other day. If used for soiling, commence cutting as soon, or before it is a foot high; let it lie three or four hours on the swarth before you give it to the cattle, and do not let too much lie in the cart, or in a heap in the yard, as it will heat, and the cattle will reject it. Top-dress with dung compost daily as you cut. One acre will feed six head of cattle and six pigs (that is, one acre managed as directed) from the middle of May to the middle of October; then it must be left to grow, and then to plough in for wheat. Clover, it is needless to say, is the best single food for all cattle. Horses require no oats, and cows very little hay, and pigs no potatoes, while feeding with it. It promotes the secretions, and makes quantities of manure, if the cattle are kept in house, well bedded with sand and straw, and the dung covered every day with earth, a practice particularly necessary in summer and dry weather. Much money would be made by turning sheep or pigs into clover before it gets high. Keep sufficient stock to keep it low—they will fatten rapidly; but by far the most profitable way to use clover is to feed cattle in the stall. Should cattle hove by getting too much clover, they can be relieved by putting a hollow leather tube down the throat into the stomach. A glass of spirits of turpentine or of whiskey, poured down the throat, relieves a cow that is hoven; but a simple instrument, directed by the writer, is made by a clever artificer of the name of Bowen,

at Whitegate, (who has done incalculable service by the invention of a machine for raising sand in deep water, by which full five hundred loads of sand are now raised where one was raised before.)* The instrument he makes to cure hoving is a little larger than a steel used for sharpening knives. It is not quite round—it is sharp at the point, getting larger to the handle, and there is a slight projection at two sides, sharp; the handle and instrument is hollow. This is inserted into a hove-cow two inches below the back, centrally between the rib and hip-bone, at the left or near side; the fetid air escapes through the hollow of the instrument, which is not removed until the cow is relieved. If the tube gets choked with excrementitious matter, it is easily cleared with a probe.

Vetches.—The land, whether lea or stubble, is prepared for them as for oats. Three bushels the quantity per acre. A bushel of rye should be sown with it, or a bushel of oats. Steep the seed twenty-four hours before sowing, and dry with sea-sand or ashes. Sow winter vetches in September, or very early in October; sow spring vetches in February, another portion in March, another in April, and you will have them come in succession. When just coming into blossom, they are superior feeding for cows; when the pod forms, they are prime for horses; or, if rye-grass, more especially

* The mode of raising sea-sand was for five or six men to go out at dead low water, and mostly only at neap tides, strip off, and load the boat with shovels; and only a small boat-load could be raised before the tide rose. The plan contrived by Bowen is this:—the boats now leave home at the turn of high water, and sail down to the harbour where the sand is. As soon as they come they drop anchor, leaving a good length to the chain: the boat drops down with the falling tide as far as the chain allows. They then throw out a large sack, with an iron all across the mouth, from the stern. There is an upright at the head and a pulley at the top; a rope from the sack goes over this, and is attached to a windlass; they then haul on the anchor with the windlass, which draws the sack on the ground: the iron scraper in the sand fills the sack, and is drawn up over the gunwale. Two men and a boy load a boat, containing ten ton weight, before the rise of tide. On the tide beginning to rise, they raise the anchor, and return with the rising tide. They can, with this instrument, raise sand every day except in stormy weather. There is a contrivance in the boat for keeping the bag in its position, which I cannot describe. On leaving off hauling on the windlass, the boat drops down again, the bag is thrown out again from the stern, and hauled in again at the head. About two hours, I should think, it takes to fill a boat containing ten ton weight. This machine has increased the number of boats to an immense amount,

the Italian, is sown with them, they make excellent hay. If cut as soon as the blossom falls, you can have turnips after your winter vetches, and a rape crop after your spring.

Trifolium incarnatum is recommended—it does not appear to me so abundant as red clover: the blossom is scarlet, and is most beautiful. If sown on stubble not ploughed, but when the seed is sown lightly harrowed and rolled, and this done in August or September, it will give much feeding in May. As it gives no second crop there will be time enough to plant Swedes, or even to sow them. Compare the state of the farmer who has plenty of clover, vetches, &c. and one who has not, in the spring and summer. He who has these crops has every acre of them supporting six or seven head of cattle in the greatest luxury for five or six months, making a large heap of dung, and his cattle fat and handsome: the next year he has a prime crop of wheat on his clover-land, and rape and turnips where he had his vetches and trifolium; while the farmer who has neither has three or four acres, half-feeding one beast—his cattle poor, unprofitable, many of them in May, and even in June, nothing but skin and bone—while the other man's horses, cows, and pigs, and those in increased quantity, are sleek and fat. He makes no dung all the spring and summer, while the clover-farmer has plenty for his transplanted rape, and every other purpose. One man's question is, how shall I finish my field for want of dung—where can I get it—who has it to sell? The other man's only trouble is, what shall I do with all this dung? At the beginning of winter, one man's dung-pit is as empty as it was in May; the other has put out dung for his turnips, for his rape, and yet he has a large heap preparing for his spring crops. Perhaps, instead of clover, the farmer has a crop of barley or oats; but what follows the next year? Rag-weed, thistles, fox-glove, and such like—what is called pasture, but which is not worth five shillings per acre, and ought to be called the starvation crop; while he who had the clover crop, and all the immediate and direct profit from it, has his fine crop of wheat most probably worth ten pounds per acre. Is this true or false? is it even probable? If it is, inquire of those who sow clover, or vetches, or both, every year; and if you find what is stated fact, call yourself a farmer no longer if you henceforth do not sow clover and vetches (both is best) every year. In feeding cows in stall, give but a little at a time, and a little hay or fresh straw after. Keep them in all day, and give them six feeds during the day. Saintfoin is

now considered the most important leguminous herbage and forage plant in the calcareous districts of France and England, particularly in the poor, dry, thin, chalky districts in the south of England. Seed for broad-cast one hundred pounds, or four bushels, to the acre; when shelled, a fourth less. An approved plan is, to sow half a crop of barley the first year with the seed: it will last from eight to ten years in a sandy or gravelly soil. It is improved by top-dressing with manures which contain a considerable proportion of gypsum, or Dutch ashes, ashes of peat, &c. The soil must be dry.

CULTIVATION OF POTATOES IN DRILLS, AND CULTIVATION OF LUCERNE.

The cultivation of the potato in the drill is very generally practised by the gentleman farmer in this county, and well done—very seldom by the working farmer, and mostly badly done; but as they get on to improved agriculture, and know the advantages of this mode, potatoes will be soon more extensively cultivated in this much more profitable and more farmer-like manner.

The field having been ploughed with a double furrow, (an essential to good agriculture, which I endeavour to confirm in the mind of the farmer by reminding him of it at every opportunity,) having been planted with rape, and dunged and managed as directed for that crop, the farmer having used all the rape crop by the 20th of April, gives his field a good, deep ploughing and harrowing, and then marks his lines (at a distance), containing six drills of two feet nine between each line, and on this line he drops the dung as directed for the cultivation of the mangel-wurzel crop. This is a far better plan than making the drill first, and then carting out the dung. By doing so in the way directed here, the ground is as loose below the set as above; the roots will not be impeded in their growth, as is the case when the drills are trampled by the horses drawing, by the pressure of the wheels, and by the trampling of the people: there is also considerable delay in dropping the dung in small falls in the drills, as at present practised, and not less labour in the spreading. The way directed will be found more complete, to take less labour, to leave the land in a much better state for the growth of the crop; and by this plan you are not confined to make your drills in proportion to the breadth of your cart wheels.

When the dung is spread, the drills having been previously

made, as directed for the mangel-wurzel crop, lay down the sets at nine inches apart, and if you plant whole potatoes, at fifteen inches apart, and then cover with the plough, ploughing the intervals. In about ten days, plough between these drills as deep as possible with a stripped plough, but a wide sock; then level the field with an inverted harrow, and roll-work the land now and at any time, only in dry weather. When the stalks are all up, with a single-horse plough, without a mould-board, as close as possible to the plants, taking the earth from them; the loose earth which goes over the head will give them sufficient earthing for the first time. Let your sock be wide and your irons sharp, so as to work all the interval when going up and down. When the plants are well up above the earth, throw the earth up to the plant with a narrow mould-board; with this make the tops of the drills sharp. At your leisure, with the stripped plough, raise earth from the sides of the drills and bottoms of the intervals, always keeping the sock wide, so as to work all the interval. Put this earth up again to the stalks, raising as much as possible on the top. In another month perform the same operation of raising earth in the furrow and throwing it up a third time. I would strongly recommend, when the potato is in full blossom, to dig the interval between the drills with the spade, and throw in earth with a shovel between the stalks, a boy standing in the next drill, or one in each, and holding back the stalk. It will increase the growth of potatoes if the ground has previously got a plentiful dressing of sand, and, where that is not to be had, of lime compost that has been often turned: if one or two years old, the better. The work for this crop is now completed until it is time to dig out; when ripe, cut off all the stalks, and lay them in layers with earth, they will increase the dunghill. Then plough off a sod at each side of every drill, girls following the plough, picking any potatoes which are thrown out, and the digging out the crop will be little trouble. Now, let a farmer compare the expense of the drill and the bed husbandry. He can do by far the greater part of the drills with his horses, much of it with one; all the work of the beds must be done by men, whom he must pay in coin or in kind, and less than half the number of them will dig out an acre of drills that are required for an acre of potatoes in beds. The crop grown in drills is all fit for market; the proportion of small potatoes is very great in beds. In drills the crop is not injured in dry weather as those cultivated in beds are; in a wet season, the crop in

drills cannot suffer from a superabundance of rain, as the water cannot lodge on them, as it must on the flat beds. In drills there is no expense in weeding; the frequent ploughings and original deep ploughing will effectually keep down the weeds for one season at least, while, in the bed-husbandry, there is considerable expense in weeding, great difficulty, in many cases impossibility, in taking them out by the roots, and the ground gets matted and packed with the roots of crowsfoot and other weeds; the tuber of the potato is impeded in its growth, and cannot come to a good size, while, at the same time, the ground is weakened by bearing two crops—one of weeds and one of potatoes; while, in the drills, the earth is enriched by the frequent turnings, by the decaying of the weeds, and it bears only one crop, and that invariably a good one, if properly managed. In summer and spring the men cannot be spared from the potatoes, under the bed-husbandry system, for making drains, to bring wet land into cultivation. In autumn and winter the men are wanted for digging out the potatoes: the process is so tedious that the wheat-sowing is obliged to be deferred until after Christmas in many cases. The planting of trees cannot be done in October and November, the best months for planting, because the men cannot be spared from the digging the potatoes; the planting is deferred, and in many cases put off altogether. If you would think on these agricultural subjects, read books on farming; learn the practices of prosperous farming in other countries; visit and inspect farms in your own country where new plans are put in practice (and it is more than probable you will not be blind to your own interest); in a short time it would be as difficult to find a farmer cultivating potatoes in beds as it would be to find one who dried his wheat for the mill or market by filling the bed-ticks, and making his servants and children sleep on it, as was formerly practised in this country; it would be, in a few years, as great a curiosity to see potatoes in beds in this country as to see a little plough, made of crooked and clumsy sticks, drawn by four, and sometimes six horses, with rope traces, back-bands of withy, collars and bridles of straw, two or three guides, a ploughman, and a man to lean on the plough, some one walking alongside to direct the ploughman, and every five minutes the whole team, horses and men, stopped from the breaking of a *gad*. Such a thing is now not to be seen, nor will bed-potatoes be seen, I trust, in a few years: they are as much the exhibition of ignorance as the wooden plough, the horses, the drivers, and the *gad*.

But what I said of rape I say of potatoes in drills—do them well or not at all.

1. *Lucerne*.—First trench the ground as directed, (with this improvement for lucerne, which throws its roots very far down,) throw up on the top the first spit of bad earth, and break up the second bad spit, leaving it unshovelled. It will greatly facilitate the trenching if you plough the field first with a double furrow. Comparatively trifling manual labour will turn it over, and pick or crow the bottom spit. Let the land intended for lucerne lie to the south as much as your land will permit—sheltered well, especially from the north: it requires shelter, not shade. When the trenching is finished, and all the stones picked off, manure with rich compost of lime and earth, which has been often turned, or sea-sand. Then open drills at one foot three inches asunder; give a good allowance of dung; cover as for turnips, and sow the seed thinly in a continuous line. Three pounds is sufficient for an acre. When the plants are two inches high, thin out with the hand to six inches apart. If you sow the seed in February or March, you will have your first cutting in June, a second in August, a third in October, a slight crop the first year; cut when the flower is beginning to show; dig or plough between the drills at every cutting, and hoe between the plants, not letting a weed appear. Do the same every year, and at every cutting put a little of the earth on and about the lucerne plant. The second year your first cutting will be in May, if you do as directed; and you will have a new cutting every forty days, and the crop increasing in abundance every year, if you keep it perfectly free from weeds, and dung it annually. Occasional dressings of lime compost or sea-sand will be very beneficial. This crop is perennial—will last from twenty to thirty, and even forty years, if managed as directed. The principal care is never to allow the appearance of a weed. It will give four cuttings every year, each year improving in quantity. It is not affected in a dry summer, and the only thing I know that injures it is the sea-blast. This, perhaps, may be prevented by dressing with oar-weed, which prevents potatoes being blasted. Lucerne is very nutritive—I should think more so than clover; but its great advantage is its coming in so early, and its not requiring to be sown every successive year. A very good way of rearing it is, first to choose a bit of warm ground lying to the south, sheltered, but not shaded; to trench or dig the ground two pits deep, and dig in some manure; then sow the seed in

drills, at a foot asunder, in the month of March. In the following October or November, or in the succeeding March, transplant into ground managed as directed for sowing the seed. Cut off all straggling roots, and dibble in the plants at eight or ten inches, or even a foot asunder, and cut as before directed; but sowing the seed where it is to remain is the best plan. Every farmer should have a piece of land under this crop—he will find it extremely useful. Coming in so early, and the cuttings so frequent, will enable him to refer to it when his other crops are not come to sufficient maturity. Mr. Herrick states in No. 45, vol. iv., of *The Irish Farmer's Magazine*, that one and a half acres fed for him, from the 10th May to 20th June, eight horses and a pony; that he commenced the second cutting on the 14th of June; that his usual time of commencing cutting was about the 20th or 25th of April, while his autumn sown vetches were first cut on the 19th June, and were then so soft as to be fit only for cows.

Read, my friends, read. By so doing, suck the brains of other men. Sleep not as do others; but first learn, then put in practice, and do not let all the great advantages which you now possess be thrown away.

DRAINING AND IRRIGATION.

The beneficial effects of draining are now well ascertained, and all to be done is, to give directions to the working farmers how to execute the work.

Mark a line across, or at right angles to the fall of the ground, as near as possible to the joining of the wet and dry land. The land which is wet in winter is easily known by its herbage in summer; as rushes, sprit, and what are called aquatics, grow on it even when dry. Make a frame with stout, straight sticks, three feet wide at top, a foot and a half wide at bottom, three feet high in the centre. A stick in the centre is necessary to strengthen the frame. Plough along the line three feet wide, lay the sods by themselves, then dig and shovel up all the good earth; lay that on one side the drain, and the tenacious subsoil at the other. Let your drain be cut all through the depth and shape of the frame—that is, three feet at the top, one foot and a half at the bottom, and three feet high. When the drain is thus finished, make a deep, wide hole, with a crow-bar at every sixteen feet, and put a flat stone or slate on it, to prevent dirt going down; then lay a French drain at the bottom, in this manner:—two

stones standing up in the centre, wide at bottom and joining at top; a close stone to each side of the drains, and one from the bottom of the centre stones, inclining to the top of the stone at the side; then flat stones at top. In this manner, there are five conduits or pipes. Let stones be laid in this way from end to end of the drain, then throw in small stones to the height of the tenacious subsoil. Lay the sods on the stones, turning the grass-side down, and fill in with the good earth; where stones are not to be had, branches of trees, furze, faggots, or such like, trampled down, will answer the purpose, and will last for many years. In places where neither is to be had, cut a channel at the bottom of the drain one-third of the breadth in the centre, the drain six inches, and a bank at each side six inches. On these banks sods are laid, bent like an arch, so that the outside edge of the sod is only on the bank at the side—this requires old, tough sods; then pack the sides well with fine earth; then fill the drain, throwing in the spare sods first, then the good earth, and the subsoil at the top. There must be no trampling or walking on the drain for some time. When the drain between the wet and dry land is thus made, it will probably be sufficient if the ground is flat or nearly so: but where the ground has much fall, a parallel drain, midway between the first drain and the opposite side, is recommended. Much of the effects of the drain depends upon the depth of the holes recommended to be made at every sixteen feet. It will save much trouble in levelling the bottom of the drain, which should be either level or have an equal fall from end to end, if the line to be ploughed for the drain was first marked out with a level. If the head-drain is a short one, a drain running with the fall of the ground at both ends will be sufficient to discharge the water. If the head-drain is long, one or more drains should be made at right angles to it, in the direction of the fall of the ground. Always till the field which you drain; lime the surface heavily, fifty barrels to the acre; burn much of it in clay-kilns; take a corn crop, or one of rape, which is far better; then, after effective ploughing and harrowing, dung highly for a crop of mangel wurzel, or turnip, or potatoes in drills. Give plenty of sea-sand, or lime and earth compost, and lay down with corn and white York grass-seeds, mixing a few pounds of trefoil and white clover; but, if you can irrigate, by all means plant the fiorin grass, the most productive known where it can be watered, and deriving its name of fiorin from its quality—fiorin meaning the

butter-grass. It will produce from five to ten tons of hay per English acre, according to quality of land, quantity of, and attention to water. If your land is flat and of a tenacious quality, clay or turf, the best mode of draining is surface-draining; and I have little doubt but that, without making the sunk drain between the wet and dry land, much of the flat lands would be made perfectly dry. To elucidate this, I will tell you what occurred on my land.

In a field which no beast could set a foot on for six months in the year, and producing very inferior pasture in the dry months, the surface two feet of turf or peat, the subsoil clay marle, I made a head-drain as I have now described, a parallel drain in the centre, three intersecting drains besides those at the sides of the ditches. I broke up the surface, ploughed well and manured highly, then sowed mangel wurzel. On perceiving the plants, which at first looked most luxuriant, become yellow and sickly, I had some taken up, and water spouted up. The same was the case in every part tried. Deep cuts were then made in the direction of the fall of the ground, at thirty feet distance, but only those plants near the cuts were any good. The following winter the field was soaked with water, and as unfit for man or beast to walk on as before the sunk drain was made, and probably every benefit from the dunging destroyed. Early in spring it was surface-drained as follows:—Each bed of thirty feet wide was ploughed, doubling on the centre, harrowed and well broke, ploughed again the same way, treated as before, then the furrows deeply ploughed and cleared. As all the surface was by this ploughing taken from the edges of the beds, they (the edges) were dug, slanted to the bottom of the drain, and some good earth thrown on them; black oats and white York meadow-grass (*holcus lunatus*) were then sown, and few such crops were ever seen. The straw was between seven and eight feet high, thicker than a bull-rush, and this on a field on which neither corn nor hay ever grew, and which was not worth five shillings an acre for pasture. The hay-crop the following year was a prime crop. I often went on the field afterwards during and after long continuance of heavy rains, and it was by far the driest in the land, where, two years before, I could scarcely walk upon stilts. I have been often wet to my knees in it, but ever after it was the driest field in my possession. Some of my sporting neighbours were very melancholy at the alteration, as it was the best snipe-bog in the county; and it was now useless for that recreation. The huntsmen were, I

was told, not a little annoyed, as there was no riding over it. They went up and down like a boy on a rocking-horse; but, as I never knew *much* good arise from these occupations as a business; but on the contrary, much evil arising therefrom—several who, had it not been for their predilection for sporting, would have been useful members of society, literally *gone to the dogs*—I did not regret a proceeding that gave a great deal of employment, which, in the end, was profitable to myself, and greatly improved the atmosphere of my residence.

In laying out as recommended for surface-draining, no part of the beds must be flat: there must be a fall from the centre to the furrow, and the more rapid the fall the better. Let the field be laid out like an asparagus-bed in a kitchen-garden, only let the beds be wider; it will be dry for ever—no rush or aquatic of any kind can live in it. If to be irrigated, it requires a greater abundance of water. The carrier must be in the centre of each bed, and it runs from that over the sides. The beds are, or ought to be, too high to take it up again from the furrows. The finest crop of hay I ever saw was on a flat field on the lands of Cloroe, laid out in this manner. If all the flat lands in our county were so laid out, the produce would be increased to an extent we have no idea of. The large tracts of flat land in the county of Meath and Longford, where the rivers have so little fall, would be greatly benefitted by adopting this plan. Cattle should never be allowed on them at night, and heavy cattle, at any time, will *poach* the beds greatly: they should always be watched on land so laid out; for if the animal rolls, and his back gets into the furrow, it is impossible for him to get up without the help of men.

Irrigation is the cheapest and most beneficial mode of increasing the production and improving the fertility of the soil; and, wherever there is a power of watering the land, every attention and care should be devoted to it. The following plain directions are offered to such as have, or can get, the use of a stream of water:—

Commence your water-carrier as high as you can go, and if springs of water come in the old course, make another parallel water-carrier lower down; and it is well worth your while to pay, and to pay well, for liberty to bring the water through another man's land. But, before you cut a foot of drain, get a confirmed title of it, and for a few feet at each side. If you merely get verbal liberty, as soon as the benefits on your land are visible, the water will be diverted from you,

and all your labour thrown away ; and you will, besides, have a quarrel with your neighbour, for which no gains are an equivalent. First make your instrument for levelling, which may be very simple. Get two stout, straight strips, unite them at one end, so that the out-and-out of the legs will be eight feet three inches wide at the bottom, or half a perch ; each of these strips to be four feet six inches long, and the scantling one inch by two and a half inches ; a bar of the same size joining these legs, two feet high from the base or feet : when made, put it upright on a level floor. Be sure that both sides are of equal length, the bottom level, and the cross-bar equi-distant from the ends at both sides. If a string be fixed on the top or vertex, with a weight tied to it, and the instrument is on a level floor, this string will touch on the centre of the bar. Mark this centre distinctly and permanently, then raise one leg one inch from the level floor, the other resting on the floor ; mark on the cross-bar where the line touches, then raise the same side another inch, and mark that on the bar also, and number both 1, 2. In the same manner, you may, if you choose, mark all the bar. Your implement is then complete. With this level in your hand, commence as high on the stream as you have authority over, and mark two spaces the size of the breadth of the legs, level, and with the third give a fall of one inch ; this will be equal to two inches in every three perches—the proper fall for water to run, to overcome its gravity. Bring the line with this level to the entrance to your field, then plough or dig one spit deep all along this line, wide or narrow according to the quantity of water. Let it never be deeper than one spit. Do not cut through heights for level, but follow the course the level marks. ~~Then~~ the clearing of the drain at the lower side, keeping the sods next the water. Make the bank firm, and sow it with furze-seed ; the roots will make it so strong as to defy any flood. When you have this drain made (which is called the carrier to your field), lay out a level drain from the place where the water enters, as long and as wide as the quantity of water will allow to run smartly over the whole bank, at thirty feet lower down. Parallel to this head-drain, lay out another level drain ; and so on, at the distance of every thirty feet, make parallel drains to the bottom of your field. Have the banks of all these drains perfectly level, and then the water will be equally divided over the planes. Begin at the top again, and lay out another level drain of equal length as the first, just as much below the level of the first as will bring all the water with it, and none run over the bank of the

first drain. Lay out parallel drains through the field as before, thirty feet from each other; lay out all the field in this manner. Do not be alarmed at your field being so much cut up, and so much apparent waste. The nearer the parallel drains are to each other the heavier your crop. Change the water every week in winter, oftener in summer, and take off altogether a week before mowing. Put on again as soon as the hay is drawn off, and there will be soon a heavy crop of after-grass. Take off the water a week before you turn in cattle. If you turn sheep or ewes in spring, dry the land always first. The feeding-down will retard the mowing a little, but the early vegetation of water-meadow, gives a very desirable bite to ewes in early spring. Before you irrigate your field it must be made perfectly dry by either French drains (as directed) or by surface-draining; and your crops of hay will be far more abundant, if you have given your field the proper cultivation directed in the previous papers, and lay it down in good heart. Where you can water, plant fiorin. When laying out the field, this grass will be found in abundance running down the sides of open drains, the trenches of potato-beds, &c. On flat land it runs horizontally. The joints of this grass are very near each other, and every joint which touches the earth throws out roots—from each shoots new plants. When luxuriant, the stalk is purplish and the leaf a brilliant green. Any person who once knows it will distinguish it at once from any other grass. In October and November it will be found in plenty, but not in pasture, as the cattle feed on it in preference to any other, if on wet land. When planting fiorin gather a quantity and make a long, thick rope; cut this into small pieces, or eight inches long: spread this on the fresh-ploughed surface, have heaps of earth in rows, and cover it lightly, roll it. When it has taken root, turn in the water. Upon no account ever turn a beast of any kind on fiorin; they pull it up by the roots and poach the ground. If used for soiling for cows from October to March, it will be excellent fodder; it being a grass very antiputrescent, every one of the joints containing saccharine, it is very easily made into hay. It can be well saved when other kinds would rot; for hay, it should not be cut till October. If you plant in March the crop will be fit to cut in October; even the stalks of saved hay of fiorin will grow, but a small patch protected till that time will give an immensity of plants. This is a purely Irish plant; and I trust all who are fond of the shamrock will cultivate the fiorin, the real Irish butter-grass.

PLANTING.

Among the many modes of improving property in Ireland, increasing the product of the land by shelter, and greatly adding to the beauty of our country, there are few, or none, which offer so certain a return as planting. The climate and soil are well suited to the growth of trees. The climate is sufficiently humid—neither too hot nor too cold. There is scarcely any part of the country in which they will not grow rapidly if they are judiciously planted, protected, and regularly thinned. By suiting the proper kinds to the different descriptions of land and situation, the most rocky, the wettest, the most unprofitable, can be turned to beneficial account by plantation. It is now no theory, but admitting of abundant proof, that the larch, the fir, ash, oak, elm, sycamore, birch, timber-sallow, poplars, beech, all the deciduous kinds, are well-suited to the soil and climate—are all, except Scottish fir, erroneously so called, ornamental and profitable. Our latitude is fifty-two; that of Scotland, fifty-seven. Our vegetation is, therefore, much greater; and yet, with all the disadvantages of climate, the much greater elevation of their mountains, the extent and profitable return of their plantations, and the beauty of their scenery, far surpasses any in this island; and this not only by the Duke of Athol and other great proprietors, but by persons who are only of the middle class, and also by the working-farmers. Planting is a source of great profit. It is a pleasing and rational occupation to the proprietor—it affords much employment in the fencing, planting, thinning, barking, to all ages. It will tend to the erection of buildings, dwelling and cowhouses, stables, barns, &c., bringing the principal material home to every farmer's door, and give more extended occupation to the artificers connected with the different branches of building. If all the lands which are fit only for plantation, such as glens, rocky hills, stony, steep, and high mountains, which are unarable, or which would not pay the labour of tillage, were planted with kinds suited to their quality, they would, after twenty years, bring in an immense revenue to the proprietor. All the deciduous, especially ash and oak, in stony and hard ground; sycamore in very exposed places (it even stands the sea-blast); alders, timber-sallow or Huntingdon willow, horse-chesnut, Canadian and other poplars, larch, spruce, and silver-fir, in deep, heavy, and wet soils; and this return would be

from land paying now little or no rent, and, for any good it is to the country, may as well be in the bottom of the sea. And their shelter and ornament would increase the value of the adjacent lands. All kinds should be planted very small; and the holes for them made deep and large, the sods and top-spit being thrown into the bottom before the plant is put down: the harder the soil and the more exposed the situation, the smaller should be the plant. In no case should they exceed four years old, and three years is old enough. Sycamore, ash, oak, &c., all the deciduous kinds except horse-chesnut, grow much better if cut down within two inches of the ground in the winter of the second year after they are planted. When they shoot, only one plant to be left, and then, if the year's shoot is not healthy, luxuriant, and the bark soft and rich, cut down again the next year. Trees should be very sparingly pruned; if carried to excess, it altogether destroys the beauty: it renders them top-heavy—therefore, more easily blown down. The best way to prune is to take one or two from each tier annually, alternately at opposite sides, and then you keep up a regular intercourse between the root, branches, and bark. A large proportion of branches are necessary for the health of the tree: when they get thick, cut down the worst-growing and the inferior qualities. A good rule is to cut away wherever, after a little thinning of the branches, the branches of one tree touch another; those that remain will be greatly increased in value. The best plan is to thin a little every year: the trees will become gradually inured to the increased exposure, and will not be torn up so readily by the wind, as is the case where plantations are left too long, and then thinned. I will take a few more extracts from that valuable number of *The Quarterly Review*, No. 72. It is understood that this paper, showing the advantages arising from planting waste land, was written by Sir Walter Scott. Mr. Barclay of Ury undertook the management of his estate, and, among his other improvements, he attacked one hundred acres of a hollow dell, which, since the beginning of time, had been unprofitable to the owner and useless to the public. He drained the swamp and planted the entire. Nothing can now exceed the prosperous state of this beautiful plantation. Many of the trees are fifteen or twenty inches in diameter, and from thirty to forty feet in height below the branches. The whole, amounting, perhaps, to four hundred thousand trees, thrive exceedingly; and, as there is every rational prospect that one hundred thousand at

least will arrive at maturity, the ultimate value must be very great. In less than thirty years, the timber on this tract of land of one hundred acres (originally barren and unproductive) will probably be worth more than the whole arable land of the Ury estate, besides greatly improving the arable land, rendering the return by rent more than fourfold what it was when he came into possession. He planted one thousand acres besides, which are now estimated at £100,000. He tells, in the same paper, of another gentleman, who had a farm of one hundred and twenty acres, for which he was offered twenty shillings per acre, and refused it. He planted sixty acres, scooping out the lower part for enclosures, and planting round in masses, which were enlarged or contracted as the natural lying of the ground seemed to dictate, and producing a series of agreeable effects to the eye, varying in every point of view, and affording new details of the landscape as the plantations became blended together, or receded from each other. About five or six years after this transformation had been effected (mark, merely by planting) the landlord met his former tenant, a judicious, cool-headed countryman (a Scotchman), who told him, that if he was inclined to take for the remaining sixty acres the same rent which he offered for the one hundred and twenty, he would give it; that he considered the benefit of the enclosing, and the complete shelter afforded to the fields, as an advantage which fairly counterbalanced the one-half of the land. Think of a rent of two pounds per acre in Scotland, five degrees north of us, by merely planting judiciously! It would be more profitable, more beneficial, now that the journey is so simplified, for our landlords, gentlemen of fortune, and heirs to estates, to go and travel over that prospering country, to see these industrious people, and to bring home a knowledge of their habits, plans, and practices, which enable the Scotch to prosper at home and abroad, than either be idle at home, visit the cafes of Paris, or spend their time in unprofitable, and often injurious habits. They would then have ocular demonstration of the results and application of knowledge to industry. Whose fault is it that Ireland, with superior advantages to any country, is poor, backward, and its agriculture most slovenly? It is said, you may know what the gentry are by the state of the working-farmers on their properties. Has it not been by the exertion and example of the first gentlemen in Great Britain that other gentlemen took up the laudable

example, and were followed by the working-farmers? In planting, there is a fine scope for gentlemen to improve their estates, and employ the population, said to be too numerous; but were there a proper system of agriculture, and were all the lands (fit for nothing else but planting) planted, there would be ample occupation even without the cultivation of our immense improvable tracts of moor and mountain. Sir Walter Scott states, in the paper referred to, that any one who plants waste and unprofitable land, say a little every year for twenty years, will, after twenty years, have an annual increase to his income of £40 per acre. If he plants one hundred acres for twenty years, his income will be increased £4,000. If he plants twenty-five acres every year for twenty years, his income from that period will be increased £1,000 per annum; and this arising from land which now pays little or nothing. He states another fact, which shows how planting will benefit the working-farmer:—A farmer rented his land for a term of thirty-eight years, from the year 1777, at £26 a-year. He was at liberty to plant all the wet ground with trees of any kind, and to use the thinnings, and at the end of his lease the trees were to be valued. In 1817 the lease expired; two valuers were appointed, who called in an umpire—they fixed the value of the timber at £1,029. The rent of the farm for the thirty-eight years was £988, and the value of the timber (which was paid at once) exceeded by £41, all the rents paid during the entire lease; besides, that the tenant had, after the first ten years, a sufficiency of timber for all home and husbandry purposes. The tenant planted mostly Scotch firs, whereas, had he planted oak, ash, or larch, he would have three times as much to receive. The timber was valued on the data of being all cut down at the time, and sold in the market, which was then low. In conclusion, he says—"The profits derivable from plantations are demonstrable even to the prejudice of avarice itself in its blindest mood; but the indifference to this great rural improvement arises not so much out of the actual lucre of gain as the fatal *vis inertiae*—that indolence which induces the lords of the soil to be satisfied with what they obtain from it by immediate rent, rather than encounter the expense and trouble of attempting the modes of melioration which require immediate expense, and what is perhaps more grudged, a little future attention. To such we can say, that the improvement by planting is at once the easiest,

cheapest, and least precarious mode of increasing the immediate value, as well as the future income of their estates, and that therefore it is we expect them to take to heart the exhortation of the dying Scotch laird to his son—‘Be aye sticking in a tree, Jock; it will be growing while you are sleeping.’” In every part of our country there is land fit for nothing else, and which pays no rent, although included in the lease. All the rent is paid by the arable land, and the clear arable land would let for as much without this, which is called waste. The tenant would be more satisfied, for he thinks, as he takes the land at an average-rent all round, that he is paying as much for the rocky glens and highland as for the arable, and hence is always dissatisfied and always complaining. Planting all these waste and unarable lands would be of such general benefit that there should be a law empowering every landlord to give his tenant one year’s notice that he intends to plant all the unarable land on his farm; that if the tenant does not plant within that period, the sheriff to be obliged, on the requisition of the landlord, to empanel a jury to value the unarable land, and that the landlord shall be put in possession; but, if he does not plant it within one year, that he must allow the tenant double the valuation until he does so. If Sir Walter Scott’s advice was acted upon in the year 1837, what a different appearance our country would have in the year 1847? and what a different state would the coffers of our farmers and gentry be in the year 1857, and for subsequent years? Several years since, a gentleman of large property told me, that had it not been for the timber on his estate, most of which was planted by his father, he must have sold his inheritance; and I was told by the best authority, not more than two years since, that the thinnings of Lord Carberry’s plantations paid three guineas per acre. The land they grew on was probably worth little more, if sold for ever, previous to the making the plantations. Many of the properties in Ireland, now heavily encumbered, the life of the proprietor embittered by large interests and importunate creditors, would be cleared of all its incumbrances if the waste and unprofitable land only were planted, protected, and judiciously thinned every year. Besides the satisfaction that must arise in the mind of a well-thinking man from a delightful occupation, affording many sources of rational enjoyment, and giving him the pleasure of reflecting that, with profit to himself, he has provided extensive employment for the dwellers of the land in the planting, thinning, felling, barking, fencing

leading to the increased employment of the artificer, the comfort of the farmer, and even to the advantage of the cattle. I would, therefore, call a man who plants extensively a wise man, a general benefactor, and a true patriot. I have little doubt, if only the waste lands were planted, hills, nolls, glens, &c., that the timber on them, in thirty years' time, would pay the whole fee simple of all the estates on which they are situated.

Remember Mr. Barclay of Ury. He got a property worth little more than £200 a year, he left the estate in this manner: one glen planted, the trees probably worth the fee simple of all his estate. He so encouraged improvement that the rent-roll he left was £1,800 a year, and one thousand acres of plantation, worth £100,000, the whole extent of the estate being but one thousand nine hundred acres. What would the wild and rocky lands of Inchigeelah, Gouganebarough, and those along the gap of Kimmenea, be worth in twenty years if now planted? What scenery would then surpass them? Instead of being now visited by a few, what numbers would then visit them for their own beauty alone?

A great error committed by those who plant a little is making narrow lines of plantation, which they call screens. I wonder they do not call them riddles. I am sure it would puzzle any one to say what they were for. They are any thing but ornamental; they can never be profitable; they form no shelter; and are both ugly and useless. No plantation, for either ornament, shelter, or profit, should be less than one hundred feet wide, and ought to be two hundred. They will then allow of being thinned to proper distances, and there will, in the end, be from thirty to forty trees in breadth, and the expense of fencing will not be more than that of the useless narrow screens or riddles. They are also planted so as to afford no shelter to the dwelling; all around a large field, designated a lawn, and then cattle often left to trespass and destroy them. The plantation, if intended for shelter and ornament, should be placed near the house, garden, and offices, and made one hundred and fifty feet wide. The ground first double-ploughed will greatly accelerate the growth—the ground next the house, tastily laid out with occasional recesses of green sward; evergreens, and ornamental shrubs, being placed in front: larch, birch, timber-sallow, Canadian and other poplar, a few oak, ash, and beech, constituting the plantation. If the situation is very much exposed, a few rows of

alder and Scotch fir on the outside. Can any thing convey a stronger feeling of ugliness and discomfort than a house on a high elevation unsheltered? The very thought makes one cold. Cuttings of the timber-sallow can be had at several places in this county, viz.: Mr. Copinger's, Middleton Lodge; at the residence of the late Rev. C. Wallis, on the Great Island, who first brought them, and who dispersed them much in that neighbourhood; Mr. Wallis, Westwood, near Mill-street; Mr. Carleton, Rock Lodge; and other places. A cutting put down in November will be a handsome tree in four years. I had them fifteen feet high in less than four years from the cutting, and thicker than a spade-handle. Evergreens of all kinds can be raised at a trifling expense if planted in the following manner:—Make a deep hole as long as the entire branch, two feet deep; throw the sods and best earth in first. Spread the branch cut off from the tree, and cover all the side-shoots to within a few inches of the top—they are to be spread out like a fan at both sides. Let this be done in October and November, and in the following summer there will be a finer and healthier evergreen than could be purchased, and a supply on the spot of twenty, perhaps thirty, well-rooted plants, which may be moved into vacant places the following October. If done as directed, every branch will strike root. I will close this subject by extracts from the timber-act, showing the powers tenants have for planting, and also the privileges of tenants for life; at the same time thinking the act ought to be cancelled, and the tenant possess the same right to cut trees of his own planting as he has to pull the apples of his orchard, or to cut wheat of his own sowing.

The act of parliament I now refer to was passed in the year 1783, 1784, in the 23rd and 24th year of the reign of George III., chap. 39. It states, that any tenant for life, by settlement, lease, office, (civil, military, or ecclesiastical,) or any tenant for years exceeding fourteen years unexpired, who shall plant any timber, oak, ash, &c., or any other trees, shall be entitled to cut, sell, and dispose of the same at any time during the said term; and by the ninth section, where the term of the tenant shall be for life, or uncertain, he shall have the same liberty, for the space of one year after the expiration of his lease, to enter on the lands, and cut, carry away, and dispose of the said trees, as if his lease had not expired, making such compensation as two neighbours, appointed by the next residing justice, award. There is no

power to a tenant for years to cut after the expiration of his lease. By this act, the right in clergy to register trees planted on their glebes, and to cut in one year after their removal to another benefice, or their heirs to cut within one year after their decease, is clearly established. The second clause states the mode of proceeding :

" Provided always, that any tenants so planting, or causing to be planted, shall, within twelve calendar months after such planting, lodge with the clerk of the peace, or county of a city, where such plantation shall be made, an affidavit, sworn before some justice of the peace of the said county, reciting the number and kinds of the trees planted, and the name of the lands, in form following :

OATH.—" I, A. B., do swear that I have planted, or caused to be planted, within twelve calendar months last past, on the lands of in the parish of held by me from the following trees (here reciting the number and kinds of trees), and that I have given notice to the person or persons under whom I immediately derive, or his, her, or their agent, of my intention to register said trees, twenty days at the least previous to this day; and that I have given notice of my intention to register said trees, by public advertisement in *The Dublin Gazette*, thirty days at the least previous to the date hereof—OR ELSE—and that I have also given notice of the same in writing to the head landlord, owner, or owners of the said ground, or his or their agent, twenty days previous to the date hereof [as the case may be]."

The clerk of the peace is obliged to file the same, to copy it into a book, and read it in open court at the next general sessions of the peace. His fee is one shilling.

Under the fourth and fifth sections of the same act, a tenant is empowered to enclose and register coppice-wood, leaving one tree in every square perch. The ninth section states, that when the term of the tenant entitled to the property of the trees by this act shall be for life, or uncertain, the same tenant shall have liberty, for the space of one year after the expiration of his lease, to enter upon the said lands—to cut, carry away, and dispose of said trees, as if his lease had been unexpired, making such reasonable compensation for damages as shall be awarded by two of the neighbours, who shall be appointed by the next presiding justice of the peace for said county, under his hand. The tenth section gives the person entitled to the lands a power to serve six months notice on the tenants to desist from cutting, and who, on receipt of such notice, must desist, and, on petition to the justices at the next quarter sessions, twenty-one days before the sessions, they shall empanel a jury, who shall determine

the value of the trees. On receiving the verdict, the justices shall declare the value in open court; and if the money is not paid before the next quarter sessions, then the justices shall declare the same in open court, and the tenant shall have the same right to cut as before. If any person should doubt the report made of Mr. Barclay's estate of Ury, in Scotland, he may have full proofs of the result of knowledge, taste, public spirit, and judicious treatment, by an inspection of the Blarney estate, where, from improvement in planting on an extensive scale of all the waste glens, rocky hills, and unarable land, executed in the very best manner by the former proprietor, George Charles Jefferies, who was the first person in this county to leave the old beaten path, by the introduction of improved husbandry, by laying out and executing level roads, a science and improvement then unknown, and, in despite of great opposition, showing an example then (thirty years since and more) which has been equalled by few, and exceeded by none, even in the present day—by improvement, by irrigation on a most extensive scale, executed then in the most skilful manner; if this estate, I say, was now visited, the value of the improvements made by him would be evident to the most perverse mind. Those extensive tracts of irrigation, and the best system of modern husbandry on a very extensive scale, are now conducted in the most superior manner by the present proprietor, of whose merit and public spirit I need say no more than that he is the active and zealous secretary of the county of Cork Agricultural Society. It used to be a question to those who visited the county Cork—"Have you kissed the Blarney-stone?" the question should now be—"Have you visited and inspected the Blarney estate?" And he who has not, has not seen what is best worth seeing in this county for picturesque scenery and profitable improvement.

MODE OF FEEDING CATTLE AND HORSES—INSTRUMENT FOR POUNDING FURZE.

The directions for cultivating the crops necessary to feed cattle in house having been given, my present subject will be on the management of the food. In a profitable and farmer-like system, cattle should be almost entirely fed in the house, and this will require constant and careful attention; the farmer must at least superintend it himself, and not trust the management to any labourer. Milch cows should be kept

in a house all day in summer, and let but no pasture at night: their fodder should be clover, vetches, lucerne, &c., in small handfuls at a time; and two pounds of hay after each feed six weeks a day from May to October. They should be kept in a house by night the rest of the year: then mangel-wurzel and leaves for October and November; white turnips, six feeds of ten pounds each; or three of twenty potatoes, December, January, and February; mangel-wurzel or Swedish turnip in the same quantity until the spring green crops come in again. A native plant called ourane, the cow-parsnip, *Heracolum spontaneum*, comes in very early; cows are very fond of it—it greatly increases their milk. It is fit to cut in May, and grows well in plantations and under high trees. Wherever it is cultivated it is clear gain. In Poland the poor people prepare a liquor from the leaves and seeds, which undrinks a fermentation, and is drank instead of ale. The stalks, when peeled, are eaten by the Kamschatkans. The Russians take the leaf-stalks of the root-leaves, peel them, hang them in the sun to dry a little, then tie them in bundles and hang them up until they become yellow: in this state they put them into bags, and a mealy substance, like sugar, forms upon the surface of them; this they shake off, and treat their guests with as a great delicacy. They likewise distil an ardent spirit from it. A gentleman who has it in his plantations—stand whose cows I saw in the finest condition while fed on it, has thus having told me that a cow which gave but six pottles when fed on it gave eight pottles—wrote: thus as follows:

I have been in the habit of feeding my milk cows in the morning with a great measure early in the spring, and find that they eat it at that time most ravenously; that it increases their milk; that it gives no bad taste to the milk and butter; that it is the first green crop which appears in spring; that it will grow in very thick plantations; that horses are also very fond of it, and that it will export both from them.

If I was at liberty to mention the gentleman's name, who thus recommends it, its adoption would be general in this country. As milk cows are better for being out on good grass only day in winter, they should get three feeds of twenty pounds each in house, with a little hay, after each, say three pounds. It will greatly improve the health and condition of beasts put up to fatten if they are regularly supplied. I take it now for granted, that the farmers will have their

stalls cleaned every day; and I need only refer to the paper
 Hounslow, on that subject. Another plant, the prickly
 xanthoxylon, is much spoken of and highly recommended for the
 feeding of cattle. Many of our native plants could be turned
 to good account if we paid proper attention to them. The
 clover of all good has surely not given all these abundant
 -a twelfth as we call them, but for some useful purpose. The com-
 mon dock is, I am told, good food for pigs, if steeped in hot
 water. Thistles, pulled before they blossom, and pounded,
 -not destroy the prickles, are superior food for horses, given in
 small quantities. It is a powerful diuretic, and fattens a
 horse quickly. Furze, though stated by our far-famed poet
 to be "unprofitably gay," is known to be excellent food for
 horses—probably the best single winter food. In the barony
 of Kimmalee and in Carberry, it supersedes altogether the
 use of hay and oats. Several gentlemen in different parts of
 the county feed their horses on it, and every person who has
 used it approves of it. The florin was unknown, or only
 thought a troublesome weed, until Dr. Richardson found out
 its value and brought it before the public. The only objection
 to the use of furze is the expense of preparing it. I have an
 instrument for preparing it, which I find to save much labour.
 Its description is as follows:—An ash pole, twelve feet long,
 —and three inches in circumference at the thick end, is put into a
 hole at the bottom of a wall, a stand such as supports the shafts
 of a gig is placed under it, at between five or six feet from the
 wall; on the top of the pole is a hook; a box is placed under
 this hook—its size is two feet six inches by one foot six inches;
 the bottom is a thick beech plank; the sides are inch boards,
 the ends bound with iron; the box is made water-tight. There
 are two pounders, each one foot four inches high, by eight
 inches diameter: a chain is fastened to the top of each; in the
 bottom face of one are knives made of steel, three and a half
 inches deep—one entirely across, two short ones in the cen-
 tre, at right angles to the long knife: there are two shanks
 to the short, and four to the long knife, which are drove into
 the timber; the other pounder is plain; both are bound with
 an iron band at top and bottom—the band of the plain
 pounder very thick and heavy. One year's shoot of the
 furze is cut off; and the trough or box is filled; the knife
 pounder is then put on, and the furze is cut in small
 pieces; then that pounder is taken off the pole; a gallon
 of water, more or less, is then thrown on the cut furze, the
 plain pounder then hooked on, and in a few minutes the fur

is as soft as pap. When the box is cleaned out, and a fresh supply put in and pounded; the water greatly assists the pounding, and the mastication after. In the Bath-Society papers there is a description of a mode of preparing furze. An upright mill-stone, turned by a donkey; a post in the centre; a long beam turning on this by a swivel running through the centre of the stone, which bruises the furze in a paved trough enclosed with flags; the donkey, tackled at the end of the pole, walks round in an outer circle, the driver now and then turning the furze from the sides. In a large scale this would be very necessary; or furze might be pounded by an instrument, such as is used in the foundries for hammering iron: this could be easily contrived where there was water to turn a wheel. I do not limit the horses to any quantity; they eat a good-sized tub, probably four stable buckets full at night, besides their manger filled at breakfast and dinner time; they get a very little hay, and a half weight of boiled potatoes at night. On this food they are equal to any work, and as sleek as if kept in body clothes. It is the only green food in winter; it is particularly good for horses touched in their wind: as long as a broken-winded horse is fed on it, he is well.

It is very good food for cows, so prepared; and in *The Southern Reporter* of November, 1837, there is an account of a farmer, who kept several cows the entire winter on furze, which he sowed in poor stony ground, which he moved every year. For horses kept entirely on hay and oats, the best way to feed them is, to cut or chop all their hay and straw, and to bruise their oats. Mix together 14lbs. of hay, 12lbs. of oats, and 6lbs. of straw for each horse; divide this into four feeds, and feed at six, a.m., and nine, at noon and at eight. In this way horses' stomachs would not be distended; they would be abundantly fed for any work, and would be always ready for use. All their food would be easily masticated, and would all go to nourish the animal; none would pass without being digested; the horse would have much more time to rest, and he would be in far better condition than in the common practice, though the quantity of food be much less. Filling the racks with unlimited quantities of hay, causes the horses to be unequal to any quick movement for a considerable time after he is taken out, and if pressed in this state soon becomes broken-winded. The dragoon and artillery horses get the allowance I state, and no more; and I think we may be satisfied if our horses are in as good condi-

tion, and as fit for work as theirs. One word more on furze and thistles. During the war in the Peninsula, when the English horses were out of condition from the scarcity of fodder, of hay and oats, the German cavalry were in high condition, as the men collected these plants every day and fed them on them. The Arab feeds his horses only by night, never by day, and we know that no horses can compete with them for endurance. But all who wish to have their horses in health and strength, clean them well and regularly, at least morning and evening: the currying and brushing greatly adds to their health; indeed, no horse who is worked can be healthy without it. Their stables and litter are always clean; and what the farmer thinks he saves now in labour, he loses not only as much, but much more, in the want of health and strength of his horse, in the much greater quantity he eats and wastes, in the smaller quantity of manure, for it is cleanliness which makes manure, and not dirt and slovenliness. A farmer should feel a pride and a satisfaction in having his horses, which earn so much for him, fat, and clean, and sleek. It is a cruel, inhuman, and surely unchristian conduct, to work a poor dumb brute in low condition, to turn him out hungry and dirty in a bare pasture, where he has no time to rest. A farmer who acts so is penny-wise and pound-foolish: let him think how he would like to be for weeks working hard, and never have his hair combed, his hands or face washed, no change of clothes, and but little to eat, and little or no sleep. Would he think his master a kind one if he treated him so? or would he, or could he work, as if he were well fed and comfortably lodged? A horse perspires much, and if he is not kept clean and constantly curried, the pores of his skin become stopped, and he gets unhealthy, rough-coated, and unsightly; and a horse which, when in proper condition, would catch a gentleman's eye, and bring a round sum, is, by the present practice, though not doing half the work he might do, not fit to be seen, or worth ten pounds. "A righteous man regardeth the life of his beast;" and he says, "taught by that power that pities me, I learn to pity them."

111 The mode of feeding milch cows has been already shown, viz. twenty pounds weight of mangel-wurzel, or turnips, three times a day, with a little hay after each feed—to fatten cattle, who are never let out, six feeds a day, of a stone weight each, with hay after each. Clover and vetches to be used in the same manner, and rape the same. When cows are to be fed on roots of any kind, a staple should be drove into the posts of

the stall, just on a level with the top of the neck, when the cow's head is down: and as soon as they put down the head to feed, put a stick through the staples—this keeps the head down, and they will never choke. A farmer should always have some spirits of turpentine by him, to give a wine glass full to any cow that is hoarse, the dose to be repeated in twenty minutes if the first does not succeed, and he should have the leather tube, the trochar, or Bowen's instrument; but he will find the spirits of turpentine the best to relieve hoarse cattle. The farmer must use his own judgment as to the quantity of ourean, florin, or furze. Some salt thrown often among the food will be very efficacious, and let the farmer remember that clearing is half feeding. When beasts are nearly fat, they become more delicate in their appetites, and their food should be frequently varied. It would be very desirable to know the quantity of oil-cake given, a practice universal in England, and which must henceforth be adopted, as I don't understand why Englishmen should beat us in any practice that is good. House-feeding sheep is ascertained to be profitable, and sheep thrive quicker confined than at liberty. They should have a yard in front of their house to go in and out; and if the bedding is attended to, will make quantities of manure. The Rev. Horace Townsend, in the first volume of *The Munster Farmers' Magazine*, page 89, states his mode and the result—"The sheep got two feeds of potatoes per day, ten pounds in each. Hay was kept in the rack, and a lump of rock-salt in the manger. After three weeks he had a fat sheep per week, the meat of remarkably good quality, and the produce of fat much greater than in the usual mode of feeding them. A sheep put in poor, will turn good mutton in six weeks: by this practice a gentleman without even one acre of land, may supply his table with mutton at a very moderate expense." I have housed them in summer and fed them on vetches, and they fattened rapidly; they will do equally well on rape, turnip, cabbage, the refuse of the kitchen garden, clover—probably chopped straw might be used to great advantage this way. To people who have but small demesnes, or to any who prefer mutton at 2d. a pound to giving 6d., perhaps 7d. a pound, this mode is recommended as a certain manner of procuring it. Dues which have reared lambs, fatten quickly, and give a quantity of milk. He writes again on the same subject, page 210, in which, besides other valuable matter, he states, that poor ewes put in on the 13th June, fattened their lambs, and were themselves

in full market condition before the 1st September. In the following year, he wrote another letter on the subject, testifying to the beneficial results of the practice from further experience, and to its adoption by others. (See same work, volume page 123.) He recommends the horned sheep as the most thriving.

ON SHEEP FEEDING.

The following is from a paper by John W. Childers, Esq., M.P. of Yorkshire:—Having tried an experiment on the winter fattening of sheep this year, I think the insertion of it in your journal may be desirable. It has for some time been my opinion that sheep would fatten more quickly in a yard than in the usual manner, on turnips in the field. In consequence of this view of the case, I last winter enclosed a small yard with posts and rails, and erected a low thatched shed, just large enough to allow a score of sheep to lie down at once. The floor of this shed was boarded with common rough slabs, and was raised eighteen inches above the surface of the ground, the boards being placed three-eighths of an inch apart, in order to allow a free passage of water, and keep the boards dry, as my great fear was that the sheep might get the foot-rot. I then proceeded on the first of January, to draw forty wether hogs out of my flock of Leicesters, and divided them into two lots, as equal in quality as I could get them. On weighing each score separately, I found the weight of one score to be one hundred and eighty-three stones four pounds, and that of the other one hundred and eighty-four stones four pounds. I put the first lot into the yard, and placed the other lot on turnips. The field was a dry, sandy soil, well sheltered, and peculiarly favourable and healthy for sheep. Each lot had exactly the same quantity of food given them, which was as follows:—

- 1st. As many cut turnips as they eat, which was about twenty-seven stones per week for each lot.
 - 2d. Ten pounds of linseed cakes, at the rate of half a pound per sheep per day.
 - 3d. Half a pint of barley per sheep per day.
 - 4th. A little hay, and a constant supply of salt.
- For the first three weeks both consumed equal proportions of food, but in the fourth week there was a falling off in the consumption of the hogs in the shed of three stones of turnips per day, and in the sixth week there was a falling off

of two stones more: of linseed cake, there was a falling off of three pounds per day. The hogs in the field consumed the same quantities of food from first to last. The result of the experiment was, that the shed-fed hogs showed an increase in weight of fifty-six stones sixteen pounds, whilst in the field-fed hogs the increase was but thirty-six stones eight pounds. Consequently, the sheep in the shed, though they consumed nearly one-fifth less food, made above one-third greater progress. The circumstances of the experiment were, if any thing, unfavourable to the sheep in the shed; the turnips, by being stored in a house for their use, became drier than those consumed by the sheep in the field; and also in February the shed hogs were salved or rubbed with mercurial ointment, which is generally supposed to give a check to feeding sheep. N.B.—The boarded floor was swept every day, and fresh straw was given after every shower of rain.

TO DESTROY THE WORMS ON LAWNS.

Roll the lawn twice; then water it with lime-water of the following strength—one pint of unslaked lime to ten gallons of water. Two dressings of this liquid will quite destroy them. If you wish to bring the worms to the surface, water the grass with the following solution:—A quarter of an ounce of corrosive sublimate, to three gallons of water: this will bring every worm to the surface, without destroying the grass.

A farmer, to succeed in what is recommended, must be himself at the head and tail of every thing. When he decides on his plan no excuse should be taken for disobedience, and no difference of opinion allowed. If the practice fails, it is the farmer who loses, and not the servant; and the farmer has high authority for saying, "Cannot I do what I will with my own?" It is difficult to introduce new practices into any country, and the greater the mental imbecility or the ignorance of the individual, the greater of course must be the difficulty. The poor labourer is the worst educated; his mind has been little worked, and besides the natural propensity to idleness, and aversion to more active habits, he is incapable of comparing and then adopting the new—he finds what he calls a reason, and invariably opposes any new practice. He who wishes to adopt those improved practices and habits which I have endeavoured to explain, and to show the utility of, must for a considerable time see every direction pat

in practice, and not take hand or eye off his business until his people are as much accustomed to them as they now are to slovenly or wasteful habits. When this is done, we will be a people as much looked up to, and held out for example to others as any on the face of the earth. You often will hear persons say—"There is no use in teaching our people any thing: they are like our heath mountains, which, while under cultivation, repay the farmer's care; but as soon as neglected, revert to their original unproductiveness." For my own part I have no such feeling; but from much experience I can testify, that our people are as teachable as any, and when their minds are once impressed, and their hands taught, they are quick to learn, and by steady and kind conduct to them, evidencing in every way that you have their welfare at heart, they will adopt and continue a practice altogether novel to them. Let employers also remember that they give directions generally to persons who think, and mostly talk in a different language—that they are addressing them in a tongue, much of which they do not perfectly understand, and then the man is put down as stupid and unteachable, whereas it is the employer that is unreasonable. Any man who wishes his labourers to understand him clearly should speak to them, and give every man his directions "in his own tongue, wherein he was born," and that in the plainest way, and often; and also show him how the thing is to be done, *if he knows how*. Let landlords and employers, do all they ought, and then let me see the man who has reason to complain.

ON RECLAIMING MOOR AND MOUNTAIN, AND ON LETTING LANDS.

The resources of Ireland are of great extent, and if the bounty of the Almighty to this highly-favoured land was taken advantage of, an immense increase of production would be gained, and endless resources of employment afforded.

The cultivation of mountain and moor has been for many years an object of interest with the agriculturist and the politician, as likely to afford at a remunerating expense great employment, and therefore greatly increasing the comforts of the inhabitants—the labourer will get regular and constant employment, and a just hire. If the country was in a proper state, the labourer's question would be, who will give most? not as now, who will employ me at all? And the expense of labour would cause the work to be done well; and most pro-

bably as much work would be done for the same money it now costs. Those above his grade, by a proper system and a just arrangement between landlord and tenant, will be enabled to purchase the produce of other countries from the shopkeepers; to give more extensive employment to the manufacturer and the artisan; and directly and indirectly to increase the coffers of the revenue, not from port and whiskey only, but also from those excisable articles which add to health and promote domestic peace and happiness. The time is, I trust, fast approaching, when the prosperity of the agriculturist will depend, not on high prices for his produce, but from industry, knowledge, and the proper application of capital.

Fertile soil requires no manure—it has abundance within itself. All that is necessary to reduce it to a mass of vegetable matter is to dry it, and destroy its antiseptic qualities. This is effected, first, by effectually draining, as directed for surface-draining; and then by the application of earth, clay, rubbish of limestone quarries, sea-sand, old banks, exposure to the air by summer and winter fallowing, and by burning, as directed for clay-kilns. If so managed, it will produce the finest crops of rape, any of the cabbage tribe, turneps, mangel-wurzel, and flurin, or grass; and after some years' cultivation, corn. Its excessive richness will cause it to be more productive of straw than grain. In *The Annual Register* for 1814, will be found an account of an extensive bog which was reclaimed in the county of Durham. It produced nothing but flocks of coarse grass, on which cattle could go only in a dry summer—the annual value two shillings and six pence per acre. In the year 1810 it was drained and cultivated, and has been since let for two pounds per acre, and produces the finest crops. About fifty years ago, Clumber Park, containing four thousand acres, was a black, dreary, unproductive heath, part of the ancient forest of Sherwood; two thousand acres were planted, upon which there is now timber of large dimensions; the remaining two thousand acres, now under a proper system of husbandry, yield excellent crops of the different grains and grasses, besides feeding much live stock. The sheep fed on a district which half a century ago was perfectly barren amount to at least four thousand annually.

In the chapter on planting (which I beg you again to read over) you perceive what Mr. Barclay of Ury did on his estate. Besides all his other improvements, he reclaimed four hundred and fifty acres from a state of barrenness and waste, and

rendered them so fertile and productive that they produced a ton of two pounds per acre. I refer you also to the chapter on draining for the results in my own case; and I will now state what one has done on a mountain property, from what was done on a small property in this county. In the year 1819, I undertook the management of a property partly mountain, partly inland, and that very bad. It had been previously let at ridiculous rents. According to the old fashion, the people, humbugged the landlord, who knew nothing of the value of land, and got into possession by promising to pay high rents. For instance, one farm was let, at sixteen shillings an acre, half mountain, and half bad inland. The whole system was broken up, and the land re-let to the persons in possession in the following manner:—at ten or eleven shillings for the arable land, and at five shillings for the moor and mountain, giving the tenant a power of laying out, out of his rent, eight pounds per year for the first eight years, five pounds for the next five years, three pounds for the subsequent five years, and one or two pounds for the next, and then the tenant to pay a rent of ten or eleven shillings per acre for the entire. The lease was for one life or twenty-one years, and had lease for both parties; but I was obliged to build upon an old foundation. The way they were to account for their allowance was specified—one shilling a perch for drains, such as before described; two shillings a perch for fences, (sown with furze-seed) made on the mountain or bog, of the described size, enclosing not less than two acres, provided the enclosed mountain was drained, cultivated, and lined at fifty barrels of lime to the acre; or for timber for dwelling-houses, offices, &c. At first there was a great deal of trouble and constant inspection; all the work had to be measured by a surveyor, and then to be inspected. Two of the occupiers wanted to impose, and to be allowed their eight pounds though they executed little or no work; but as “I was Yorkshire myself,” they could not impose. They were positive, and I was determined; and after much difficulty they were ejected. A small plantation was made about every dwelling; and now for the result.

I first premise, that the Rev. Cornelius Buckley, the parish priest, told me that in the year 1819, and before, if he was searching for a sheep-staler, or any bad character, he would go to these lands, to look for him; and, be sure to find him there; but that now they were the most respectable, the best-conducted, and the most comfortable tenantry in the parish.

and that any visitor coming to the country would be pleased and instructed by seeing the property—that it was an “oasis in the desert.” This respectable gentleman is no more, and I now only say, that I ever enjoyed his friendship and often his hospitality. I consider his loss a grievous one to the parish, where he lived for nearly fifty years, respected by all. *Requiescat in pace.*

Two rent days were appointed for the tenantry; and on these days, after the first three years, the money was paid as fast as the clerk could count it and hand it to me, and the next day a bank post-bill for the amount sent to the landlord. The security of his rent was annually increasing by permanent improvement. Every man has a comfortable house and offices, well sheltered; almost all the mountain has been tilled and well ditched; what was a few years since an open common, would now puzzle the Duhallow fox-hunters and the rakes of Mallow; every man has a good stock of cows and horses, and plenty for them. I have known them often pay their September rent without selling a grain of corn—their rent made very much by hay-seed which grew on mountain, three years before not worth much more than the county rates. When I left that part of the country four years since, and the landlord took on himself the management of his estate, a gentleman who knew the property of old and then, declared, that the furze on the ditches would feed more cattle than the entire would have done in the year 1819. The landlord had a real income, paid to the day, increasing every five years—the security annually multiplying, and the staple of the property always increasing. The tenant who was dissatisfied, and no wonder—ragged, poor, badly lodged, in a dreary waste—now comfortable, independent for his rank, well lodged, his rent paid, his receipt in his pocket, and his corn still in his haggard; his cattle, instead of one or at most two starving on a wild heath, now increased four-fold, and comfortably chewing the cud in a warm cow-house; instead of one miserable horse, two, three, often four, well-fed horses; the landlord got the full value of the land in its original state, and probably more. For the trouble and direction, he is now receiving remuneration by the diminution of the allowances, and from the land, as quickly as the term for the bringing in mountain is out, his income will be very nearly, if not altogether as much as *was promised*, but which it was impossible he could ever have received, under the former system. The security for the rent is as good as could be had; and,

better than this, the tenants are most comfortable, most industrious, and never known to be in riot or litigation. The most essential requisite for the improvement of a property, a level road to limestone and market, was made (benefitting this and several properties in the vicinity) by a neighbouring gentleman, who greatly benefitted that part of the country by extensive and well-made new lines of road. The fiorin grass was cultivated here, and found of great value for winter soiling. These facts, and many others that might be mentioned, (even in this county, places which I remember nothing but grouse mountains and snipe bogs, now producing potatoes, and corn, and hay, as well as the arable land,) are surely an encouragement to the cultivation of moor and mountain, on an extensive scale. Planting in those exposed situations would greatly accelerate their fertility, and increase their produce. I now give a few directions for enlarged cultivation, which are scarcely necessary, so well is the business known.

First, mark out, in straight lines, the fences, whatever the size you intend your fields to be. At the breadth of three fields enclose a space of sixty yards, or more, to run the entire length of the farm, for planting. When planted with trees suitable to the description of soil, register. Before twelve months, run other belts of plantation, at right angles to this, at the end of every three fields, from end to end of the farm, and at the outside of the breadth of the next three fields, enclose another long, wide space, and plant it, and so on, at the breadth of every three fields, so that every nine fields will be enclosed with a belt of plantation. Four acres is a very good size for each field, and then every thirty-six acres will have a plantation, at all sides, of sixty yards wide, at least. Plant the quick-growing kinds—Canadian poplar, timber sallow, and intermix with other kinds, Cobbett's acacia, by all means in sheltered situations; very few Scotch firs; alder very good to plant extensively. I would recommend the planting to be the first commencement of mountain improvement; then enclose your fields, and sow the tops of the banks with furze seed. In tracts of mountain which are large and flat, narrow canals to intersect the fields, in place of banks, will answer a double purpose; all the manure and produce can then be taken with little labour to and from each field by boat. By planting the banks with timber-sallow, alder, poplar, &c., the waste of the ground will soon be repaid. Arthur Young recommends the canals to be seven feet

wide at top, four feet at bottom, six feet deep. As for all the soil is peat it can be cut in blocks with a hay knife. In those fields which a farmer cannot readily cultivate in the proper manner, he can make produce a much more valuable heath than heath, by pulling the heath, heavily harrowing the land, if possible, top-dress with lime compost; harrow and rake over as much as possible, and sow it with white (Yorkshire) down grass, and a few pounds of white clover and trefoil, to each acre; and when the grass has covered the ground, irrigate if possible; but this is merely temporary, until he can give the land the proper rotation. Extensive cultivation of rape, for seed, would give a large return. I refer you to the directions for that crop; but, as on an extensive scale, grafting would be very expensive, the fields should be ploughed, cross-ploughed, and the surface burned in clay kilns. When the fire is well established, damp, and even wet soils and clay will burn. Water increases instead of diminishing the heat. Then plough into beds, so as to give an artificial fall to the bed, as directed for surface draining. This is essentially necessary for all peaty soils which are retentive of water, and if they do not get an artificial fall, the crops will be a failure. But by all means plant flax where you can water it; the plants can be readily got, or the seed can be had at Mr. Mayeroff's seed-shop, opposite the post-office, in George's street, Cork, and any seeds got from him may be depended on as genuine. I once compelled a farmer to plant flax from the flat bottom, which he could abundantly irrigate; he planted in November, two acres; and from the following October to March he supported seven cows and four horses on the produce. He cut it daily for the cattle. Those two acres would not have kept a Kerry cow alive before; they were good for nothing.

MODE OF LETTING LAND. The present practice of letting land to the highest bidder, on lease for twenty-one or thirty-one years, or one, two, or three lives, is disadvantageous to the tenant, and highly injurious to the landlords; the errors of the practice have been pointed out by Mr. Jefferson, in a letter published in the *Minister Farmer's Magazine*, April 1819, No. 1, p. 11, p. 224. If land is let on bargain, the probability is, the tenant will be satisfied to have it in a state to pay his rent and no more, and to live as he hitherto did. If you let it high,

he tills the ground with or without lime, until it ceases to give good crops, & he is ruined, and the landlord loses probably two years' rent and the cost of ejectment. The manner of letting land I recommend would be to give a term of thirty-one years; to fix, first, a fair rent upon what is capable of being made so; and to add one-fourth to this for rent; then the tenant to have an option to pay one third of the sum total in specified improvements, drains of certain dimensions; banks of a specified width and height; timber for specified description of dwelling-houses, with or without flooring or slate; all to be clearly specified, and a sum limited to each description each year; a certain sum to be defined for proper rotation of crops; not to be allowed if a fair proportion (to be clearly defined) of turnips, mangel-wurzel, and rape are not sown, well manured and properly managed. Then, in ten years, to offer the tenant a renewal of his lease, increasing the rent five shillings per acre, and altering the allowance according to the wants of the farmer. In ten years more to renew the lease on a further rise, and at the end of every ten years to renew in a similar manner; the rise of rent to be henceforth regulated by the state of the markets, and what will be, if properly attended to, the high state of cultivation of the farm. Thus, land worth twenty shillings per acre will be let for twenty-five shillings, while the tenant will have the power of reducing the paying rent to fifteen shillings per acre, the remainder being expended by him in such improvements as increase the staple for rent, and increase the productiveness. In all lettings the allowance only to extend to ten years, and then it will be always the tenant's interest to renew, as he will, if he chooses to be industrious, have five shillings less rent to pay by the renewal than if he continued without a renewal. If properties were managed in this manner, and the lands cultivated as directed in the foregoing publication, we would soon see a radical reform in Ireland. To have the proper result, landlords must give up much time, and pay great attention for a few years, to see that every allowance is fairly and properly done; and they should also have what Mr. Blacker calls an agriculturalist, ready at a call for every tenant, and who would be a superintendent under the landlord or agent. Any person appointed an agent should be particularly conversant in modern agriculture; and, as to have an agent living in a remote city, and probably knowing nothing of the management of land, I would as soon make a man-milliner my gardener

or steward; one is as fit for one office as the other for the other.—An officer is justly proud of the state of the soldiers under his command, and he is blamed or praised, not for his own, but for the merits of his men; their cleanliness, comfort, and discipline. What proper pride does a captain take in the high order of his vessel, and the comforts the ship's company enjoy. A gentleman will take pleasure in exhibiting the condition and sleekness of his horses, and showing off the training of his dogs; and is it not a matter deserving equal praise, and should not a humane and well-judging landlord be equally glad to show a comfortable tenantry, with good houses, clean and well-furnished apartments, a nice kitchen-garden, a well-managed farm, showing the result of skill, expenditure and superintendence: is not such an equally or a more just cause of exultation than any of the foregoing? We call a king the father of his people—should not a landlord look upon himself the father of his tenantry? whom he should assist, direct, and advance in life. The situation of landlord is one of great responsibility; the peace and happiness of the nation mainly depend upon the way tenants are treated by the landlord; surely a large property is a talent entrusted to him, for which he must give an account. The landlord's ladies can greatly advance the prosperity of the people; and if once they begin to take an interest in the welfare of those who are attached to them, to their husbands, and their children, they will want no directions from me, "love will find the way,"—that they will receive the warmest return of endless gratitude many proofs could be adduced. It is now half a century since the lady of the late rector of Glanmire left the parish of Skull. When she lived there, the remark of the inhabitants when they saw her moving about on her daily errands of good works, was, "that is not Mrs. Chetwood, but an angel in woman's form." Although it is now fifty years, or more, since she left them, her memory is embalmed in their hearts, and her name and her good deeds are handed down from mother to daughter, and from father to son. I could mention many other instances of the most ardent gratitude for kindness received forty years since; and if any wish to learn what a landlord's lady should do for the tenantry—how her kindness is received, and what real good is effected, let them visit Court-mashery, and "go and do likewise." May it be said hereafter of each and every one of our landlords, "he hath done what he could," and young men or old men, whose time now

hangs heavy on their hands, who sleep all the morning, and spend all the day in hunting, shooting, and such like, "wasting their sweetness on the desert air," their nights at the table, recounting the exploits and hair-breadth escapes of the day, and discussing the merits of a horse or a dog, would have a profitable and rational occupation for mind and body and be no longer "*fruges consumere nati*."

An agricultural friend of mine, some years ago, wrote the following FARMER'S CALENDAR, and with his permission I now give it in his own words:—

Commence with oats upon the lea,
Not trenched but harrowed in, I say.
Drilled 'tatoes will of course succeed—
Let not appear a single weed.
When ploughed and harrowed out complete,
In drills you ought to sow your wheat,
With which sow clover in the spring,
'Twill lots of Summer fodder bring.
Follow the system over and over,
Lea-oats, potatoes, wheat, and clover,
And you will find, my honest fellow,
Your land grow richer and more mellow.
But if you wish to farm well,
And make both stock and tillage tell,
Give turnips half your year's manure,
They'll pay you well you may be sure.
One stall-fed beast will do more good
Than ten that roam abroad for food;
Sow wheat upon your turnip land,
And after harvest try your hand
At rape, transplanted with the plough,
Prime feed for either sheep or cow.
Your other wheat land sow in shares,
Half with red clover, half with tares,
They'll all enable you to keep
Such stores of cattle, pigs, and sheep,
That if you will but close attend
To these directions of your friend,
You'll reap the profit of your labours,
And soon grow richer than your neighbours.
In days to come perhaps you'll raise
Some mangel-wurzel, beans, and peas:
A patch of saint-foin and lucerne,
And folding all the year round, learn
To keep your cattle in the house,
You'll have fat horses and fat cows,
Fat calves, fat pigs, fat mutton—and
Believe me you will have fat land.

In March oat-sowing will be over,
 In April barley and red clover;
 Potatoes spoil the month of May,
 And rob the farm in every way;
 In June you'll end your turnip sowing,
 July, your hay will keep you going,
 August, the harvest will come smack in,
 Prepare for reaping, binding, stacking.
 Sow vetches early in September,
 Wheat in October and November.
 Your Winter work is now commencing,
 Ploughing, carting, planting, fencing,
 Thrashing, selling, BANKING, draining,
 With others hardly worth explaining,
 These various operations bring
 The season round again to Spring;
 And now it truly is full time
 For me to end my rustic rhyme.

THE FARMERS' AGRICULTURAL CATECHISM.

What sized farms are best suited for the general resources of the working farmers? From fifty to sixty acres, which may be easily cultivated under a judicious rotation of crops by one pair of horses.

What is the most profitable mode of managing a farm of fifty acres? That whereby the greatest number of cattle can be kept, the greatest quantity of manure made, and the most grain raised.

What is the method of doing so? By dividing the farm into five equal parts, viz.—Corn in two divisions; clover in one division; mangel-wurzel, turnips, cattle, and house potatoes in another; hay and pasture in the fifth, having besides a portion of land under lucerne and kitchen garden.

How many head of cattle will one acre of mangel-wurzel on Swedish turnip, and one acre of clover support all the year round? If the land and crop is managed as previously directed, these two acres will support in the best manner four cows and four pigs at least.

What are the advantages of this system? Fifty acres, under the rotation recommended, with rape grown as directed, will support in the best manner forty cows and forty pigs all the year round, will produce twenty acres of corn, prime in quality, abundant in quantity, and the large quantity of manure made by stall-feeding so many cattle all the year round, and making it in heap, as directed under the head of making manure, together with deep or double ploughing, and a green crop always coming between two corn crops, will make the land every year more productive; while, if the entire land was in pasture of the best kind, it would not support half the number of cattle, and there would be no corn.

What would be your rotation of crops? First division—Less oats or less wheat, rape transplanted into the field when the corn is cut. Second division—Nine acres in turnip or mangel-wurzel, one acre under pota-

toes. Third division—Wheat, sown in drills, at ten inches or a foot asunder, with from eight to ten stone to the acre, and after the wheat has been hoed, clover-seed sown in April and the field rolled. Fourth division—Clover and rye-grass to be used in soiling cattle in the house; to be dressed with dung compost daily, as the clover is cut, and what can't be thus used to be made into hay. Fifth division—Hay off part; pasture on the rest, to be lightly fed in summer, and then affording a full bite for the milch cows in winter, what is called waste grass, and which a farmer should never be without; this field to be broke up when one of the others is permanently laid down.

What is the best proportion of grass-seed for permanent pasture? Five pounds of trefoil, five pounds of white clover, three pounds of rib grass, half a bushel of cocksfoot, four pounds of Timothy grass, four pounds of Italian, and five pounds of perennial rye-grass, each to be sown separately, and equally distributed in one acre; or on turfy or low ground, to the Irish acre, one and a half bushel of cocksfoot; one and a half bushel of perennial rye-grass; ten pounds of Timothy grass; seven pounds of trefoil, or three quarters of a bushel of Italian, and the same of perennial rye-grass, instead of all perennial. If those proportions are sown in June, there will be an abundant cutting for soiling in September.

What quantity of seed would you sow to each green crop? Three pounds of mangel-wurzel to the acre, the price 1s. 6d. a pound—ten pounds of red clover, price 6s., and one bushel of rye-grass, price 3s., to the acre; two pounds of Swedish turnip, price 1s. per pound, to the acre.

Every farmer should make out a list of questions in this manner, and he may call it his Agricultural Catechism.

Whatever directions are given to the farmer, and however rightly he may execute them, he will never reap the full benefit except the woman of the house gives her heart and hand to the business. A dressy, flimsy, gossiping wife will be ever a heavy drag upon the best farmer; while a woman of good sense, active habits, who has her husband's and her children's interest at heart, and who makes home comfortable and attends to every business, will cheer her husband when depressed, and will be a blessing to him, and will herself be ten-fold more respectable than if dressed every day in the pink of the fashion. I know many farmers who are fast getting rich from having good wives, and I know others who are going fast down the hill, because their wives are above their business; but they are mistaken, for no business is beneath any one which is their duty. Let any idle, fine, dressy farmer's wife read the twenty-two last verses of the last chapter of the Book of Proverbs, and there learn what she ought to do; and also the first six verses of the third chapter of the 1st Epistle of Peter. She should not only get them by heart, but write them out and paste them upon the mantel-piece, that she may read them at least once a day.

As our farmers are, I trust, rapidly advancing, I shall endeavour to give a few receipts for what in a great measure constitutes the difference between a savage state and that of high civilization.

COOKERY.

BARM.—Boil half an ounce of the best hops in four quarts of water; until they sink; then strain the water into a crock. When it is milk-warm, add a quarter of a pound of very coarse sugar, and half a pound of coarse flour; keep this covered by the fire for twenty-four hours; then add four pounds of finely-bruised potatoes, as hot as possible; keep it by the fire until it rises, then put it into a cool place; it is fit for use in two days after. One pint of this barm is sufficient for four quarts of flour; wet the flour with water in which bran has been steeped; mix the barm with it at night, and bake in the morning. When you want a hot cake, wet each pound of flour with a pint of Buttermilk; knead well, mixing well with it a small tea-spoonful of soda powder; put it at once on the griddle; it will be very light, and eat rich.

TO MAKE KRASS, A FAVOURITE DRINK OF THE RUSSIANS.—Twenty pounds rye flour, five pounds pale, five pounds high dried malt; stir the ingredients well together in an earthen vessel with hot water until a thick mash is made; put the jar into a well-heated oven for four or five hours; then take it out and pour the contents into a mashing-tub, adding thirteen gallons of boiling water; let it stand to settle, which it will do in about twenty-four hours; then pour the liquor into a cask, and ferment till very slightly acidulated; it will then be in a state for drinking, but it will never be clear; infuse into it a few handfuls of mint leaves.

EYE-WATER.—One ounce rose water, three grains sulphate of zinc, three drops laudanum.

POTATO CHEESE.—Potatoes, which should be of a good and dry kind, must be boiled, and then bruised very fine; to this add the sixth part of its weight of curd, and a little salt; the whole must be well mashed together and left to stand three or four days; in winter longer. It is then to be kneaded a second time, when it should be made into a shape, and left to dry in the usual manner. The older this cheese is the more agreeable the flavour. If you wish to have it particularly good, make it of two-thirds potatoes, and one-third of curd; to which add a little sheep's milk; it must be kept in a dry place and covered; it will keep for years.

BLACKBERRY JAM.—This preserve is the most wholesome and least expensive that can be made. To every pound of fruit put half a pound of the coarsest moist sugar; boil it three quarters of an hour, stirring it all the time; then put it in pots and cover it.—Black currant jam is made in the same manner, only put equal quantities of sugar and fruit.

TO SWEETEN MEAT, FISH, &c., THAT IS TAINTED, OR TO PREVENT ITS BECOMING SO.—Lay pieces of charcoal in various parts of it, and put charcoal into the vessel while they are boiling.

RICE PUDDING.—Three pounds of rice (more or less according to the number of your family) boiled in a pudding-bag, tied so close that it would hold five pounds; when boiled, the bag will be full; add a little sweet milk or cream, and a little brown sugar or treacle and a little spice; it is richer with the addition of five or six eggs and a little butter. This baked, is a dish for an alderman.

TO STEW OX CHEEK OR COW'S HEAD.—Stew for some hours, in four or five gallons of water; then let it cool and take off the fat; then boil the liquor and cheek again, adding some peas or rice, thyme, celery, or a pinch of celery seed; a few turnips, carrots, and onions; when the liquor is reduced one-third, put it by for use; heat what you want, adding pepper and salt; it will keep four or five days if well seasoned.

PEA SOUP.—In the water in which corned pork or beef has been boiled, as soon as the broth boils quick, throw in a quart of dry peas, one dozen of onions, some turnips, carrots, parsnips, a little parsley, and some ground pepper; boil till the peas and vegetables are very soft, and keep hot for the farmer's supper.

Boil potatoes slowly; put them down nearly of an equal size; when they begin to boil, pour cold water on; if not boiled soft and mealy to the heart they are unwholesome; a hard potato gives no nourishment—it is quite a mistake supposing a potato "with a stick in it" is stronger than a well-boiled one.

STEWED BEEF.—Coarse parts of beef—the neck, the leg or hough—make most nourishing soup, by slow boiling in a small quantity of water till quite tender; then take off all the meat, cut it into small pieces, then pour on all six quarts of water, adding onions, carrots, turnips, thyme, celery, or celery-seed, pepper and salt; boil till the water is reduced one-half, and the bones become white—this is a most nourishing soup.

Instead of, as at present, boiling fish and putting it on a plate swimming in its own broth, the men and children then dipping their potato peeled with their fingers (a nasty practice) into the dish, and taking a pinch of the fish now and then, let a quantity of potatoes be well boiled and broken small, then well-boiled fish mixed up with it, a little pepper and salt, and some butter or lard, then heated and put on the table; or make into shapes and brown it before the fire—the latter is a handsome dish, fit for any table.

A very substantial dish is made in the north of Ireland called thump. First grow your beans; then, when full grown, boil; take off the skins, and bruise them; then mix with mashed potatoes, butter or lard, with pepper, salt, and an onion; and when heated again put on the table.

These are only the commencement of good house-keeping; and the farmer's wife who is anxious to have every thing comfortable for her husband at home, will soon find that he has forgot the way to the public-house, and she will spare no pains in having every thing comfortable for him. "It is too troublesome" is an expression you never hear from a wife who has read the thirty-first chapter of the Book of Proverbs.

A small kitchen garden being an essential for good house-keeping, I give a few plain directions. Every one knows how to plant cabbage; but they should also raise them; therefore, early in March, ask Mr. Haycock for a small quantity of the kinds fit to sow then. When they are good plants, transplant into a seedling bed, and when well-rooted plant out. In June get some more seed, sow and transplant. In July and in August the same. Always trench your garden at least two feet deep—it signifies little what kind of earth is at top, so that below is good, for it is on that the root lives. Get a little thyme-seed, parsley,

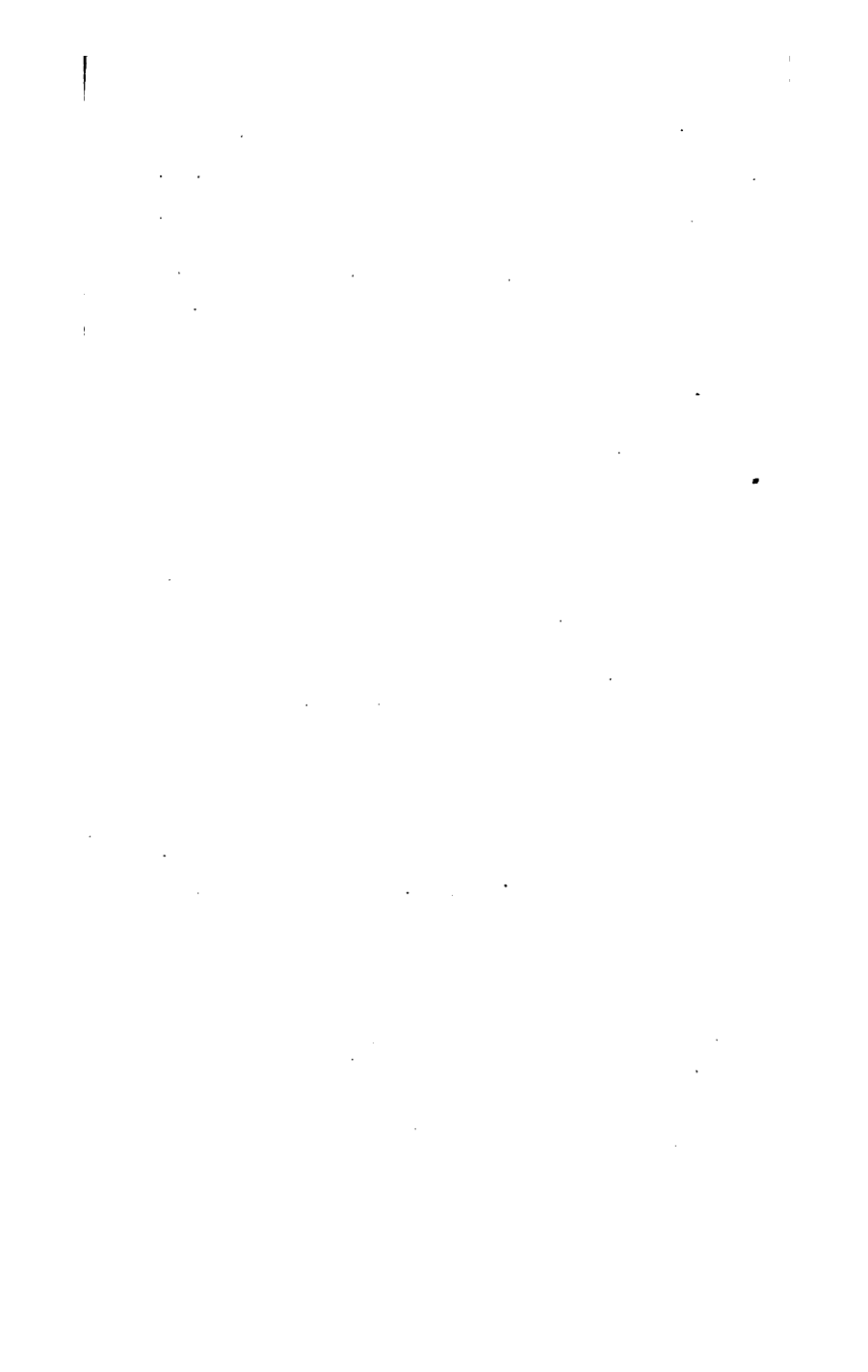
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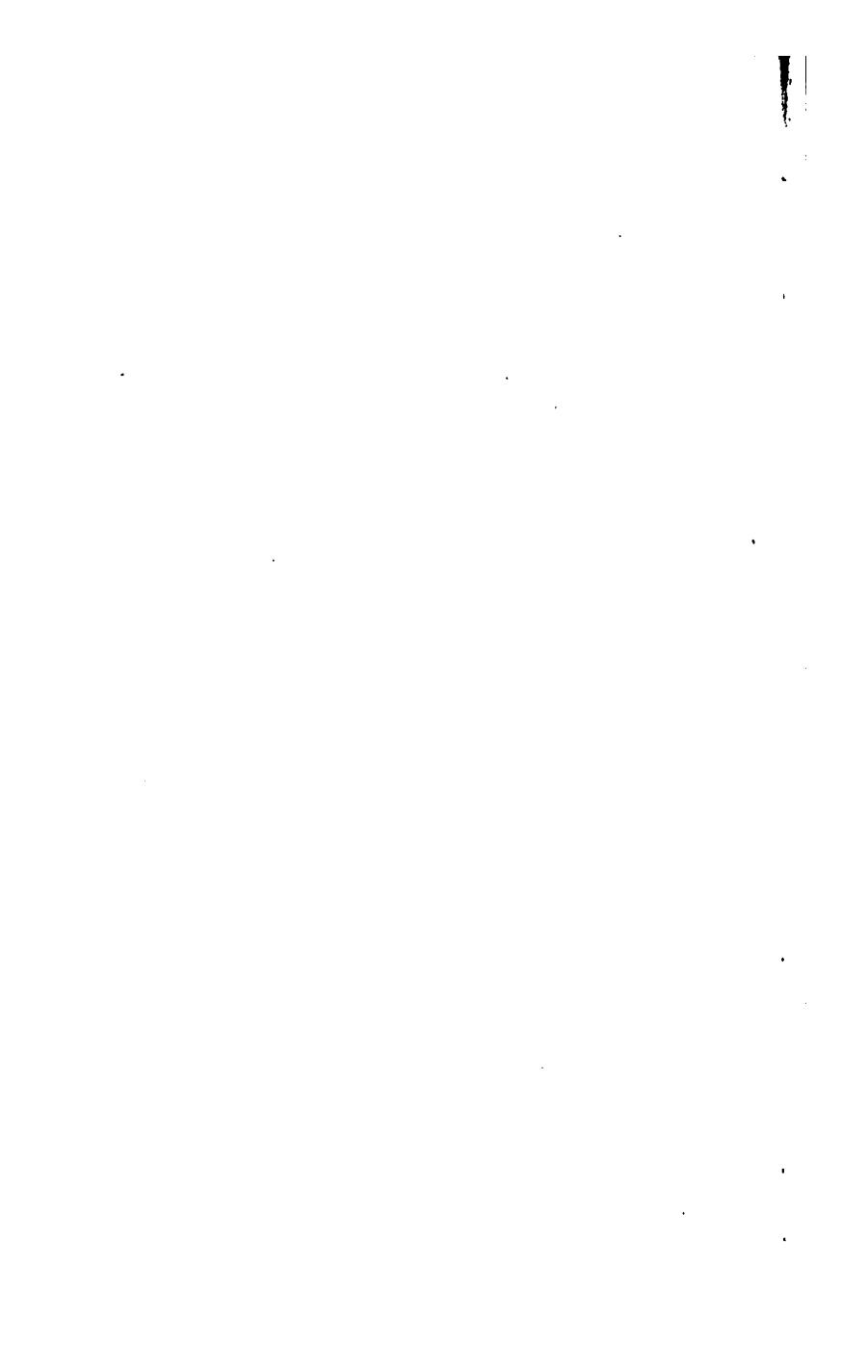
I fear I have now fatigued the public, and I shall therefore write no more. I have endeavoured to convey such information as I possess, in as plain and clear a way as I am capable of doing; and most sincerely do I hope the call I now make on my fellow-countrymen will be answered in the affirmative, and that they will follow all those plans and practices I recommend, which will exalt them among the nations. There are thousands more capable than I am to give information, and I trust, now that the ice is broken, when the editor of *The Southern Reporter* has a spare column, that there will be always a paper ready to his hand, from some of the many who are so capable of affording instruction.

"Who can find a virtuous woman? for her price is far above rubies. The heart of her husband doth safely trust in her, so that he shall have no need of spoil. She will do him good, and not evil, all the days of her life. She seeketh wool and flax, and worketh willingly with her hands. She is like the merchants' ships; she bringeth her food from afar. She riseth also while it is yet night, and giveth meat to her household, and a portion to her maidens. She considereth a field, and buyeth it; with the fruit of her hands she planteth a vineyard. She girdeth her loins with strength, and strengtheneth her arms. She perceiveth that her merchandize is good; her candle goeth not out by night. She layeth her hands to the spindle, and her hands hold the distaff. She stretcheth out her hand to the poor; yea, she reacheth

1-18 Likewise, ye wives, be in subjection to your own husbands; that if
2-19 any obey not the word, they also may without the word be won by the
3-20 conversation of the wives; while they behold your chaste conversation
4-21 coupled with fear. Whose adorning, let it not be that outward adorning
5-22 of plaiting the hair, and of wearing of gold, or of putting on of apparel;
6-23 but let it be the hidden man of the heart, in that which is not corrup-
7-24 tible, even the ornament of a meek and quiet spirit, which is in the sight
8-25 of God, of great price. For after this manner in the old time the
9-26 holy women also, who trusted in God, adorned themselves, being in
10-27 subjection unto their own husbands: even as Sara obeyed Abraham,
11-28 calling him lord: whose daughters ye are as long as ye do well, and
12-29 are not afraid with any amazement.”—1 PET. iii. 1-6.

THE END.





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